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SOUTHWESTERN MEDICINE

VOLUME VII SEPTEMBER, 1923 No. 9

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

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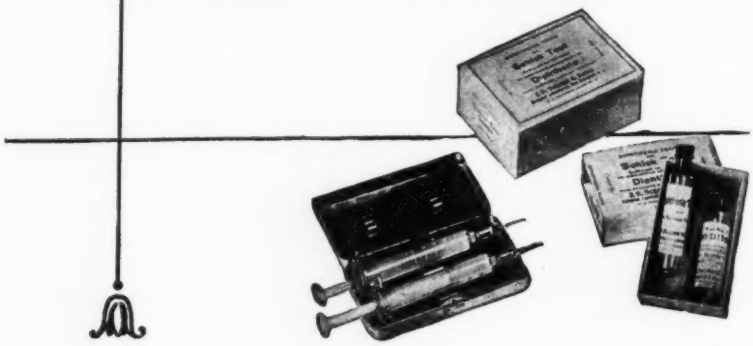

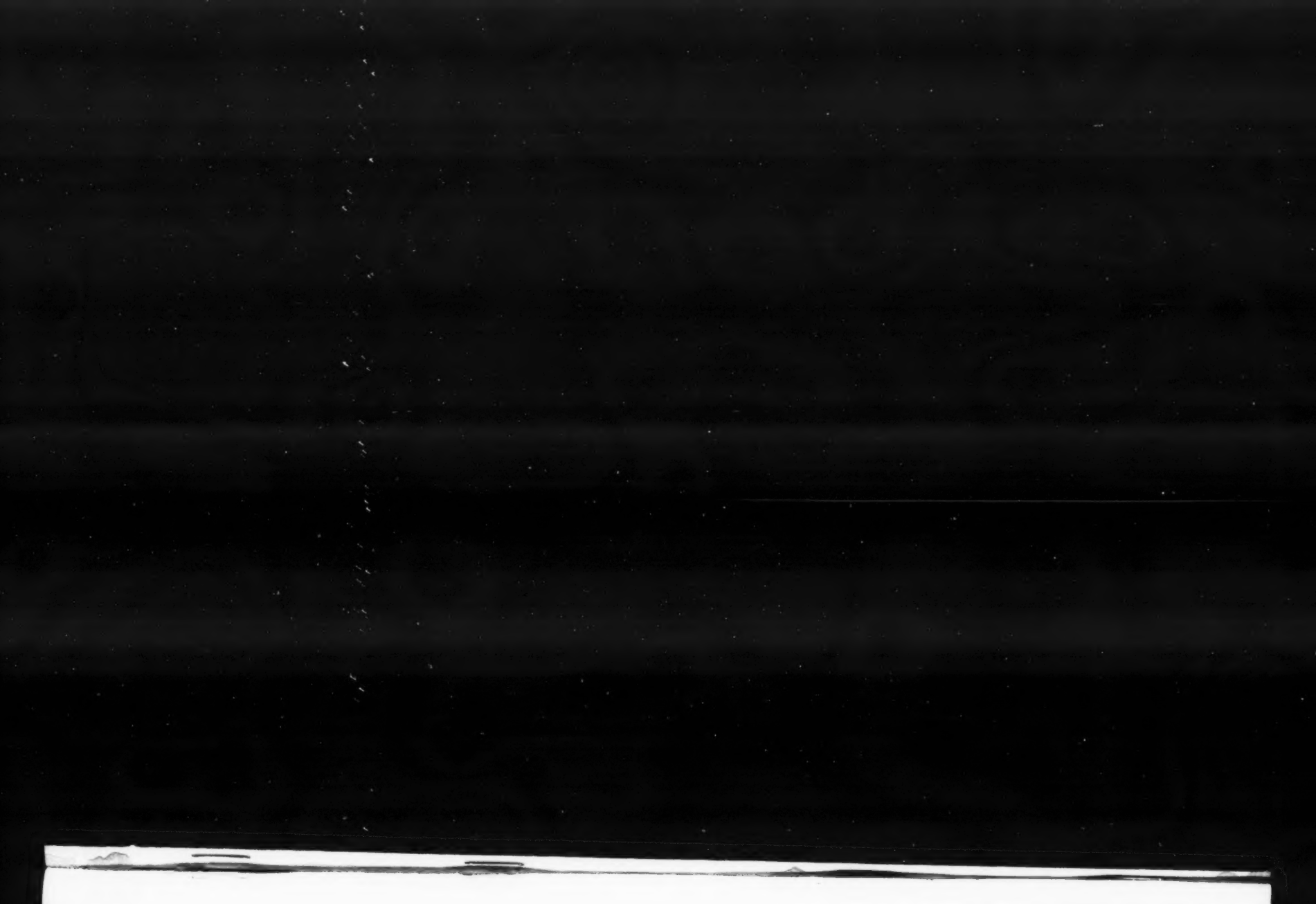

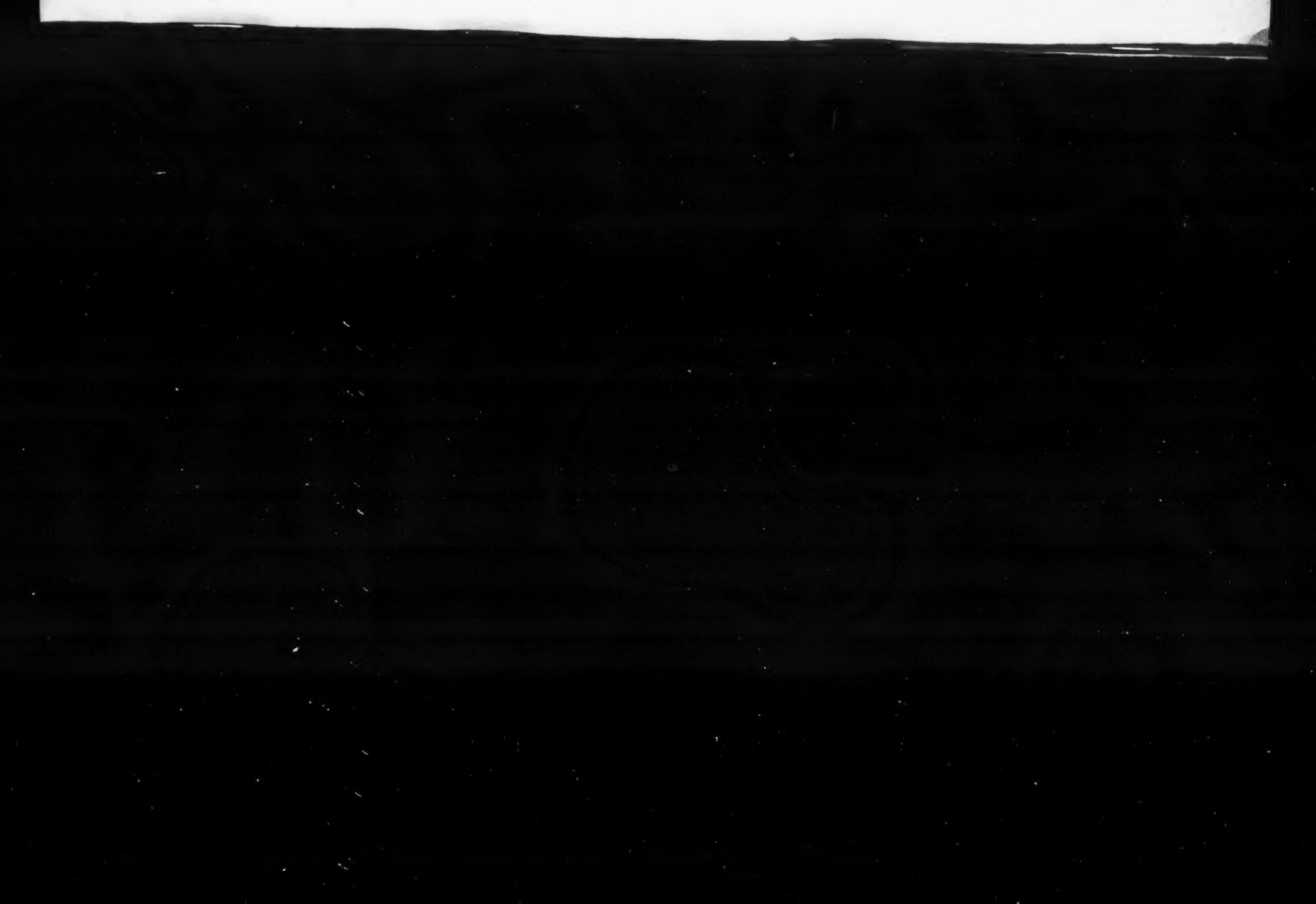

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PUBLISHED MONTHLY

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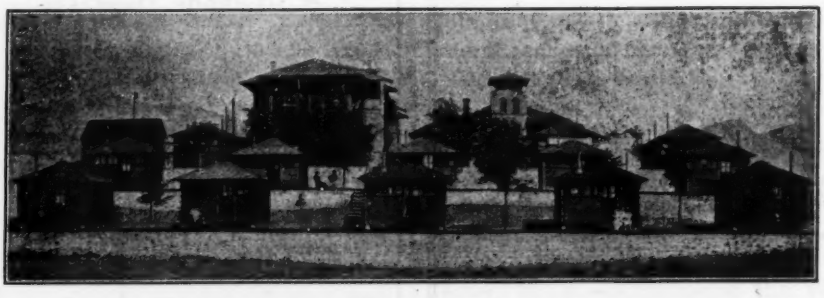

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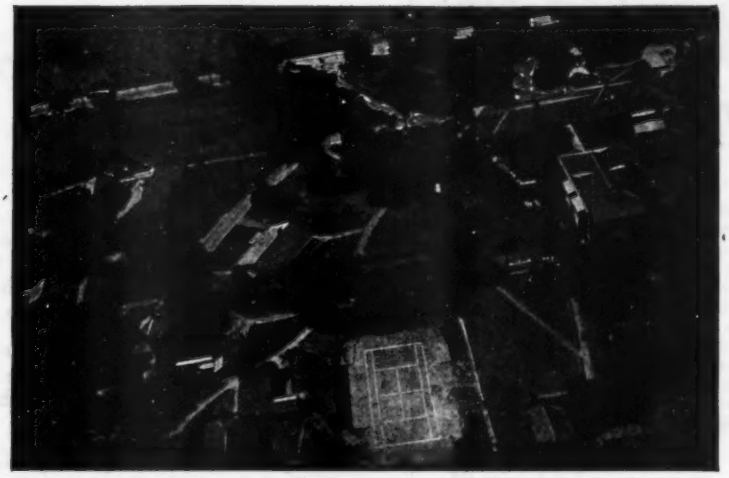

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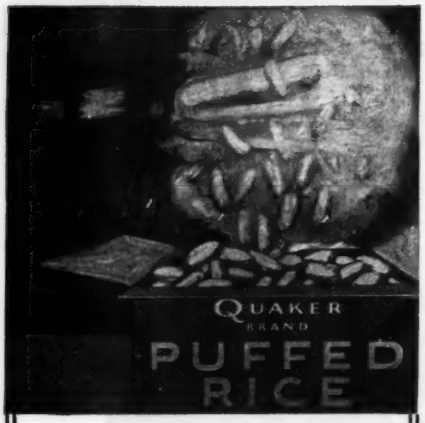

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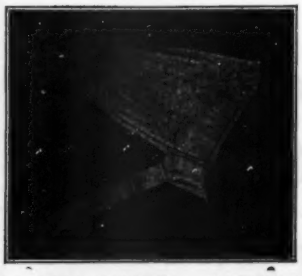

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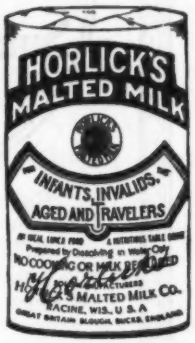

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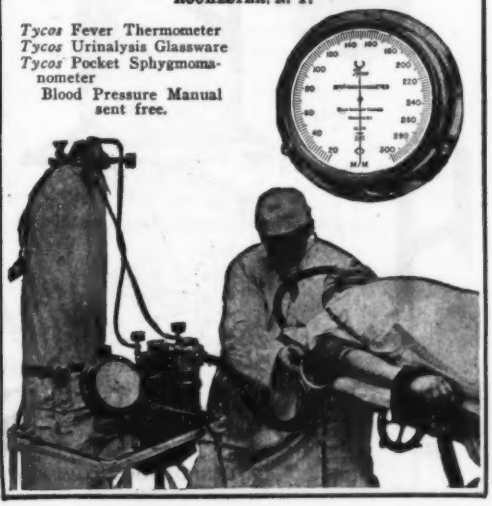

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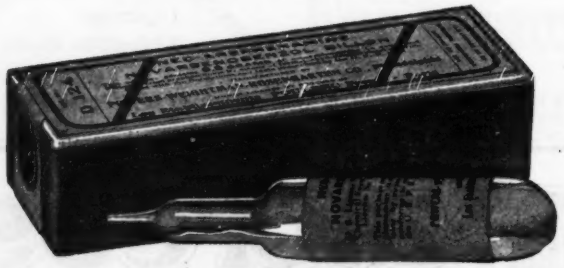

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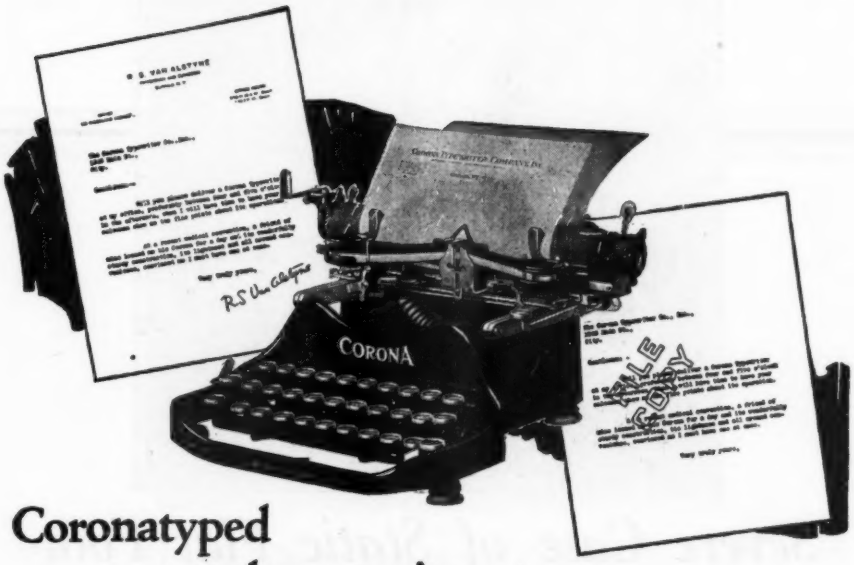

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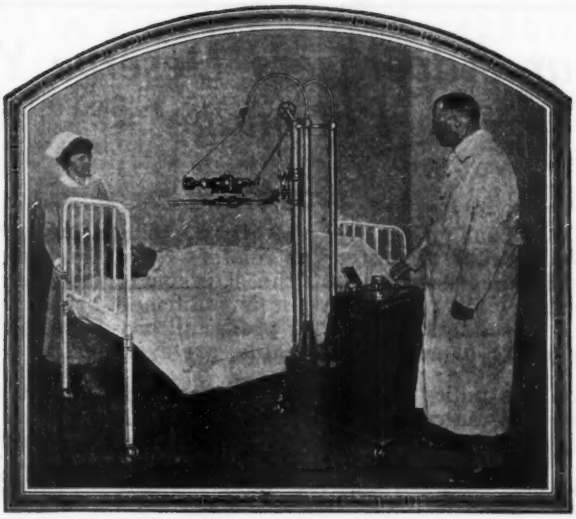

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INSULIN IN THE TREAMENT OF DIABETES*

FREDERICK M. ALLEN, M. D., The Physiatric Institute, Morristown, New Jersey.

The enormously important discovery of a potent pancreatic extract by Dr. Frederick G. Banting and collaborators at the University of Toronto is now so universally known that further testimony to the achievement is not needed. It is only possible in a short paper to summarize the successive steps in the work and the present method of clinical application of the new remedy.

EXPERIMENTAL DEVELOPMENT

Inasmuch as the acinar tissue of the pancreas mostly atrophies after stoppage of the duct, while the islands to a large extent remain, Dr. Banting conceived the idea of making an extract from this atrophic pancreatic tissue. He therefore ligated the pancreatic ducts of dogs, and after seven to ten weeks prepared an extract by grinding up the atrophic tissue in Ringer solution. This extract proved able to control the glycosuria and hyperglycemia of totally depancreatized dogs, and also to extend their duration of life very appreciably. The next step was taken by preparing a similar extract from the pancreas of fetal calves before the fifth month of intrauterine life. It was found that up to this stage the toxic enzymes of the acinar tissue had not developed, but the islands present were able to furnish a highly potent extract. With these early extracts, either crude or partially purified, several fundamental facts were established: namely, that experimental diabetes could be controlled, as mentioned, so that the life of one depancreatized dog was extended to as long as 70 days; that acetonuria was likewise halted; that with administration of carbohydrate the respiratory quotient was raised, indicating combustion of carbohydrate by the aid of the extract; and also that glycogen was deposited in large quantities in the liver.

Purification was next accomplished, essentially by solution and precipitation with different strengths of alcohol, and by this same method the problem of preparation of an extract from the ordinary sweetbreads of adult slaughter house animals was solved. In rough outline, the method consisted in grinding up the perfectly fresh pancreas with approximately its own bulk of alcohol, the mixture being slightly acidified with hydrochloric acid in order to inhibit the pancreatic enzymes. These enzymes, which are toxic in themselves and also rapidly destroy the secretion of the islands, have been the chief cause of failure in past attempts of this kind. The mixture above mentioned was filtered, and the island hormone was

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thus obtained with many impurities in a solution of approximately 50 per cent alcohol. Further addition of alcohol, to make about 88 per cent strength, then precipitated most of the protein. The filtrate was next evaporated to dryness or nearly so at low temperature in a vacuum, in order to avoid destruction of the hormone by heat. The residue was treated with alcohol of 95 per cent or higher strength, which removed lipoids but left the hormone in the form of a gray powder. After further similar purifications, the final purified product was dissolved in water or physiological saline and filtered through porcelain for sterilizing. The process has since been improved in various ways and the yield greatly increased, but the essential principles established in this early work hold good.

For therapeutic purposes, some standard of dosage became necessary, and for this purpose use was made of a phenomenon discovered by Professor Macleod. The pancreatic extract was found to reduce the blood sugar not only in diabetic animals but also in normal animals. When normal rabbits received a certain dose, their blood sugar was lowered to a fatal degree. The critical blood sugar level was found to be about 0.045 per cent. The symptoms of hypoglycemia were excessive hunger and excitability, followed by convulsions, coma and death. These symptoms, being due to hypoglycemia without any extraneous toxic factor, could be relieved promptly by the feeding or injection of glucose or other suitable carbohydrate.

The pancreatic hormone was given the name "insulin," from the Latin name for the pancreatic islands. A unit of insulin was then defined as the quantity of the extract which will kill a rabbit by hypoglycemia within five hours. The problem of commercial manufacture was next taken up in a highly commendable manner by Eli Lilly and Company, of Indianapolis, who gave to their product the trade name "Iletin," from the English name of the pancreatic islands. A difference arose in that the Toronto investigators had used rabbits of approximately 2 kg. weight, while the Lilly Company used those of approximately 1 kg. for standardizing purposes. Accordingly, the Toronto unit was the stronger, and has been variously estimated at from 3 to 5 times the strength of the Lilly unit. The latter finally received general adoption for commercial purposes. The rabbits are now standardized by uniform preliminary feeding, and by fasting over night before the test, and this general plan is still employed for standardizing all the insulin now in clinical use.

THEORETICAL APPLICATION

From a theoretical standpoint, one of the most important results of the discovery of insulin is that it completes the pancreatic island theory of diabetes. This proof may now be summarized as follows: First, total pancreatectomy causes a violent and acutely fatal form of diabetes. Second, partial pancreatectomy can produce a precise imitation of the clinical disease, with polyphagia, polydipsia, polyuria, emaciation, acidosis, lipemia, progressiveness, etc. Third, aseptic inflammation of the pancreas can also be used under suitable experimental conditions to cause diabetes, which runs its course to the typical fatal end. At autopsy, the fibrous scars of the original injury are generally found in the pancreas, as in most human cases, but in a few instances the repair is so complete that no such signs remain. Fourth, the vast majority of human diabetic autopsies reveal more or less extensive lesions in the pancreas, and in the fewer cases where these are slight or absent an explanation is still afforded by the animal experiments mentioned. Fifth, identical changes occur in the islands as a result of feeding beyond the tolerance in both experimental and clinical diabetes. These constitute the well known hydropic degeneration, which is strictly specific to diabetes and which results in progressive destruction of islands by functional overstrain. For details, reference must be made to former

publications.[1] Sixth, insulin controls experimental pancreatic diabetes and likewise all cases of clinical diabetes so far as yet observed. If any cases originated in something other than pancreatic deficiency, we might expect them to prove resistant to insulin, but the uniform response of all the thousands of cases already treated seems convincing. As some vestiges of the pluri-glandular craze may persist in some quarters, it may be worth while to repeat that no manipulations of any other organs have produced any condition resembling true diabetes. The glycosuria of piqure and other nervous lesions, and likewise adrenalin glycosuria, represent merely a transitory rapid breaking down of liver glycogen. They do not occur if glycogen is lacking, cannot be made to continue, and especially fail to reproduce the one essential feature of true diabetes, namely the loss of power to utilize carbohydrate. Confusion should not arise from the fact that adrenalin can sometimes be used as an antidote for insulin. This antidoting effect is on a par with a sugar injection; it is immaterial whether the sugar is derived from the liver or from an outside source; neither the adrenalin nor the sugar really opposes the true function of insulin, which is to make possible the utilization of glucose and other foods by the body.

PRACTICAL APPLICATION

Turning now to the practical clinical use of insulin, we should call to mind first the known facts of diet treatment. This treatment began with the restriction of carbohydrate alone, by Rollo at the close of the eighteenth century. About the middle of the nineteenth century, Bouchardat and others restricted protein, as a source of glucose production in the body. Finally, in recent years, it was established that fat and all other sources of energy in the diet increase the strain upon the pancreatic function. The introduction of undernutrition, or limitation of the total calories and body weight in proportion to the severity of the diabetes, resulted in control of a large class of diabetic cases which had never been made symptom-free under former treatment. The early procedure of absolute fasting was long ago abandoned in favor of an extremely low initial diet composed chiefly of protein and carbohydrate. As the weight falls the tolerance rises, and advantage has been taken of this principle to build up gradually the diet which is best suited to the tolerance in each individual case. It has been possible thus to keep the great majority of patients in reasonably good health.[2] Those with the severest grades of diabetes have had to live as emaciated invalids. Nevertheless, even they have been more comfortable than on diets which permit active symptoms, and in my opinion it has been demonstrated that the progressiveness of diabetic cases in general can be actually halted by sufficiently strict care in avoiding functional overstrain. I believe that the recent tendency to a return to high fat diets has represented a distinct step backward. It has never been possible to strengthen or fatten the patients of the worst type with such diets, and the fundamental principle is wrong in that it ignores the slow but powerful influence of fat upon the diabetic tolerance.

From the foregoing, it is evident that insulin treatment means an attempt to raise the diabetic food tolerance by use of a pancreatic extract. Several corollaries are at once evident. First, the treatment cannot be a cure, because an extract cannot accomplish the repair of the patient's damaged pancreas. The benefit, therefore, can continue only so long as the treatment is continued. Second, there is the disadvantage that insulin must be given by subcutaneous injection (or intravenously if specially rapid action is desired). Most hormones obey this rule. Thyroid stands as an exception, and insulin resembles adrenalin and pituitrin in being practically inert when given by

mouth or by rectum, because it cannot penetrate a mucous membrane, or is too quickly destroyed, or for both reasons. Third, there is another resemblance in the fact that the action of insulin is powerful but brief. Depending on the size of the dose and other factors, the effect is probably maximum in two to four hours and passes off more or less completely within five to ten hours. The doses therefore must be frequent in order to maintain a uniform action. Fourth, there can be no general rule of dosage, but the requirements must be determined by individual study in each case. It is obvious that severe cases must require higher dosage than mild cases, and that high diets must demand higher dosage than low diets. Fifth, the management involves a constant steering between Scylla and Charybdis. If the dosage is too low, the diabetic symptoms will not be controlled; and if it is too high, hypoglycemia may prove serious or possibly fatal. It should be immediately added, however, that with reasonable care all these difficulties can be overcome, and the insulin treatment is both feasible and in the highest degree beneficial.

As a guiding principle in insulin treatment, just as in treatment by diet alone, we require that glycosuria be kept absent at all times of day and the blood sugar as nearly normal as possible. Some slight degree of hyperglycemia must be permitted in most cases which are severe enough to demand high insulin dosage, because an attempt to maintain a continuously normal level would involve too great danger of hypoglycemia. Some practitioners, including a few specialists, have attempted an easier program by permitting patients to have at least a slight glycosuria every day. The claim is that by this means the danger of hypoglycemia is more easily avoided, and that patients can gain weight, look well and feel well over long periods in this way. The criticism can be made, however, that this plan accomplishes merely the conversion of a severe into a mild form of diabetes. The marked excess of sugar in the urine and blood is certainly unphysiological, and sooner or later deleterious effects are to be feared from such an abnormality. The injury may conceivably take the form of the well known impairment of the patient's own tolerance, or particularly, the so-called complications of diabetes are to be dreaded. The incidence of such troubles as cataract, retinitis, carbuncle and other infections, arteriosclerosis and gangrene has actually been highest in mild neglected cases heretofore, and there seems to be no theoretical reason why these patients receiving inadequate insulin dosage should not be subject to them. Furthermore, there is abundant proof in the experience of many practitioners that it is feasible and safe to keep any trustworthy diabetic patient symptom-free with insulin treatment, and therefore to permit glycosuria seems to be taking an unjustifiable risk.

Two extreme plans are possible in beginning treatment. One is to begin with the usual sharp reduction of diet, so as to clear up symptoms with the minimum demand for insulin, and then gradually to increase the diet and dosage to the limits considered best. The opposite plan may be to give a theoretically ideal diet from the outset, and undertake to supply enough insulin for its assimilation. Similar extremes are open in beginning the use of insulin. It may be begun with minimal doses, perhaps of only 1 or 2 units, and increased slowly so that glycosuria is abolished only after a number of days, or large doses may be given abruptly to clear up all sugar within 24 hours, with dependence upon glucose administration to avert any danger of hypoglycemia. Different physicians will doubtless use different methods, perhaps with equally good results. It is impossible to hurry beyond a given rate with any plan, because the patient's tolerance usually changes with treatment up to a certain point. We ordinarily find institutional treatment of two or three

weeks to be desirable in average cases, for thorough control together with thorough instruction. In this Institute we generally follow a course intermediate between the two extremes mentioned. If insulin seems to be required at all, we begin with moderate dosage of perhaps 6 to 20 units per day, according to the estimated severity of the case, and increase as indicated by experience. The first diet generally consists of moderate quantities of protein and carbohydrate, perhaps 40 to 60 gm. each, while fat is limited to a minimum as a precaution against acidosis and also as a means of aiding the tolerance for carbohydrate and protein. The details of the initial treatment are far less important for success than the planning of the permanent program and the patient's instruction in carrying it out.

The frequency of injections must also be guided by individual needs. The ideal administration would imitate the action of the normal pancreas, providing a continuous supply of hormone with increases at times of special need. In practice, insulin injections are given before meals, which create the largest demand for the hormone, and dependence is usually placed upon the patient's own pancreas for bridging over the intervals. We find that divided doses increase the effectiveness, and therefore we never give less than two injections per day, i. e., before breakfast and supper. In more severe cases, requiring larger total dosage, three injections, one before each meal, ordinarily suffice. In rare cases with scarcely any remaining pancreatic function, it has been necessary to give a fourth dose about midnight in order to maintain a fairly uniform curve of blood sugar. The general tendency under the treatment described is toward morning hyperglycemia and evening hypoglycemia; and in the rare cases of extreme severity there are difficulties with either hypoglycemic collapse in the evening or glycosuria in the early morning, unless the extra dose is given during the night. To some extent, irregularities can be balanced by making either the meals or the insulin doses larger or smaller at different times of day. The total diet and total insulin dosage are, however, the chief determining factors. We have found no serious inconveniences with the method described, even among laboring people, and practically without exception the patients or members of their families have accustomed themselves to giving the injections with ease and safety.

Hypoglycemia, as already mentioned, is recognizable not only by blood analyses but also by characteristic symptoms. In the first stage there may be abnormal hunger, nervousness or weakness. A sensation of trembling, whether actual tremor is visible or not, is usually experienced. Increasing weakness, mental excitement or confusion, profuse perspiration, and finally loss of consciousness ensue, but convulsions are rare. All thoroughly treated patients become acquainted with these symptoms through their own experience or through witnessing them in others, and learn to safeguard themselves, either by reducing or omitting the next dose of insulin or by taking the antidote in the form of some easily assimilable carbohydrate. Any sugar will serve; a glass of orange juice or a few pieces of candy are used by some; and we ordinarily advise our patients to carry an ounce package of powdered glucose. If there is inability to swallow or actual unconsciousness, an intravenous injection of an ounce or less of glucose usually revives almost instantly and a subcutaneous injection somewhat more slowly. In urgent haste, a clean filtered glucose solution may be given intravenously without sterilizing. An intramuscular injection of 1 cc. of 1:1000 adrenalin solution is used by some as an emergency measure, but we have preferred to have glucose constantly in readiness.

The basic principles of diet treatment are not altered by insulin. The need for accuracy is, if anything, even

greater than before, because the opposing dangers of glycosuria and hypoglycemia can scarcely be avoided except by weighed diets. Only the extreme privations of the past are avoided. We aim to give every child enough food to grow and develop normally, and every adult enough food to carry on his regular labor while remaining at least 5 or 10 pounds below the standard normal weight for his height. The patients who can attain these ideals without insulin are the ones who do not need insulin. Our allowances of protein and carbohydrate are fairly liberal, perhaps 100 gm. of each for a diet of 2000 calories or over. The facts previously established concerning the influence of fat are confirmed by insulin. Experiments of this kind have recently been published,[3] and part of one of the tables may be reproduced here as an example. (Table I.) It will be noticed that glycosuria developed on the diet of 804 calories up to Sept. 9. It was checked by the low calories, while the blood sugar showed corresponding changes, though allowances were made in all instances for the supposed carbohydrate (glycerol) value of the fat by suitable alterations in the carbohydrate intake. This well established fact, that the diabetic tolerance and insulin requirement are influenced by the total calories of the diet and also by the body weight, leads to two conclusions. First, there is no sound basis for diets disproportionately and uncomfortably high in fat and low in protein and carbohydrate, and acidosis is most safely avoided by avoiding such diets. Second, the practical purpose of the ketogenic-antiketogenic formulas that have lately been proposed has been the giving of the minimum glucose that is possible without acidosis, on the supposition that only glucose influences the diabetic tolerance. As this underlying assumption is definitely incorrect, we make no use of such formulas. The quantities of carbohydrate and protein allowed are ample not merely for prevention of acidosis but for general health and comfort. The insulin requirement is kept within moderate bounds by moderate limitation of total calories and body weight. We have never used more than 70 units per day in the regular treatment of any uncomplicated case of diabetes, and the average dosage in our entire series, including a high proportion of severe cases, is below 20 units per day. We believe that these measures are most efficient for avoiding the inconveniences of high insulin dosage and also for the general welfare of the patients.

TREATMENT OF COMPLICATIONS

The entire discussion up to this point has applied to uncomplicated cases. The important complications of diabetes are acidosis and infection, and both of these require prompt and radical therapeutic measures.

The statistics of coma treatment will vary with the definition of the word coma. Most patients who have reached the stage of deep unconsciousness still die. A smaller number in somewhat less advanced stages also die. The deaths occur sometimes because there is not time enough for clearing up acidosis, sometimes for unknown reasons after acidosis in the chemical sense is abolished, and sometimes from concealed infections which are overlooked amid the general symptoms of acidosis. Of the nine cases classified as coma in our series, four ended in recovery and five in death. The outstanding fact, however, is that insulin is a specific for diabetic acidosis, surpassing practically any specific that we have for any other moribund state. The dosage required is extraordinarily high. We ordinarily give 50 units or more at the very outset, partly intravenously and partly subcutaneously, and follow with further doses every hour or two under the guidance of blood tests. The dosage in the first 24 hours in an advanced case is seldom less than 100 units, and in one extreme instance we gave 485 units within 24 hours. Carbohydrate in the form of fruit drinks, glucose, etc., is supplied in the amount of 100 to 200

gm. for the first 24 hours, partly to facilitate combustion of acetone bodies and partly to safeguard against hypoglycemia. The largest possible quantities of fluid, moderate dosage of sodium bicarbonate, and other customary measures for coma are used in conjunction with the insulin treatment.

Infection also creates a decided increase of insulin requirement, so that 100 units or more may be demanded daily for perhaps several weeks, in a case which after recovery from the infection may need only a fraction of this dosage. The most critical emergencies are usually created by carbuncle, septicemia and other severe acute infections. These are treated on surgical principles as thoroughly as possible, while insulin is used to achieve quick and continued sugar freedom. The commonest surgical complication is gangrene. Here insulin often accomplishes more rapid and thorough control of the sugar than was possible by diet alone, and accordingly may often effect the saving of life or limb. It seems, however, to confer no specific increase of healing power; and, granting that the sugar in urine and blood is thoroughly controlled, there has seemed in our experience to be no difference whether the control was obtained by insulin or by diet alone. In all cases of this sort we use moderate undernutrition as an aid to healing. The reverse condition is presented by tuberculosis. Undernutrition heretofore has been clearly beneficial for both prophylaxis and treatment, as compared with a state of active diabetes; but nevertheless the combination has proved a fatal one for the great majority of patients. Insulin will undoubtedly save many lives by enabling the assimilation of an abundant diet. We do not attempt to raise the weight of any diabetic above the average normal for his height; but, within this limit, we stint neither food nor insulin in the attempt to build up the patient to resist tuberculosis. These are the only cases in which we have sometimes regularly given 100 units of insulin per day or slightly more. Cases are hopeless, of course, when the infection has reached a stage which would be hopeless in a non-diabetic. Our patients in less advanced stages have shown gains in weight and general condition which are altogether unparalleled for diabetics with tuberculosis, so that the discovery of insulin seems to have afforded for the first time a favorable prognosis for such cases. All physicians or institutions treating tuberculosis should give careful attention to urinalyses, in order not to overlook a diabetic complication, and if sugar is found they should either be prepared to administer efficient treatment with diet and insulin or send the patient where he can receive such treatment. This measure is more important than climate or any other factor in such cases.

GENERAL RESULTS

For numerous details both of treatment and of results, reference must be made to the more complete publications on this subject.[4] The results in a general sense, however, are easy to summarize. A few patients are incorrigibly disobedient or careless, though their number is diminished with the more satisfying diets made possible by insulin. Altogether, three of our patients with uncomplicated diabetes have deliberately discarded diet, or stopped the use of insulin, and have met unnecessary deaths. There has also been a certain mortality in cases complicated by acidosis or infection, as mentioned. With these exceptions, there have been no deaths in our experience now comprising over 250 cases. It has been possible also to build up all patients, old or young, to a satisfactory level of strength and weight, even though some had previously been barely kept alive as emaciated invalids through a number of years preceding. The degree of improvement is best illustrated by photographs. For example, the 3-year-old girl shown in Fig. 1 had a tolerance of only 10 gm. protein and 100 calories, without carbohydrate, and was slowly emaciating

Figs. 1 and 2—Front and profile views of Patient No. 574, on August 22d, before insulin was given.

Figs. 3 and 4—Front and profile views of Patient No. 574, on January 11th, five months after insulin was started.

to death till her condition was transformed by our earliest supplies of insulin. Apparently as a result of the more thorough pancreatic rest afforded by insulin, a few patients have shown gains of tolerance beyond what seemed possible with diet treatment alone. No actual cure, and no tendency to prolonged progressive improvement, have been observed. On the other hand, no downward progress, indicated by a need for reduced diet or increased insulin dosage, has occurred in any cases under thorough treatment. This is a hopeful clinical fact, and also has some theoretical significance. It is scarcely conceivable that a progressive patholigic process in the pancreas or elsewhere could be halted by a mere pancreatic extract. If the widespread belief in an inherent and inevitable progressiveness of diabetes were correct, we should expect cases of the progressive type to continue to show decline of tolerance, until all were reduced to the level of "total" diabetes and compelled to receive their entire insulin supply by injection. The opposite experience to date favors the view which was supported by accurate diet treatment, namely that the progressiveness of diabetes has been due essentially to functional overstrain, and thorough relief of the strain either by diet or by insulin arrests the downward progress. It will be noted that this view of diabetic pathology is far more hopeful than the opposing one, and by reason of the experience with insulin it may now receive greater attention.

CONCLUSION

In conclusion, an extract will be quoted from our larger publication on insulin.[4] "It is feasible for patients at their homes to remain free from glycosuria and nearly free from hyperglycemia under combined treatment by diet and insulin. Overnutrition makes freedom from glycosuria difficult, and exposes to acidosis, infection and other dangers. Insulin is a literally epoch-making discovery, which revolutionizes the results of diabetic treatment when properly employed, but it cannot atone for lax or inaccurate dietary methods."

CASE NO. 574.

Date 1922	DIET P. gm.	F. gm.	C. H. gm.	Cal.	Glycosuria gm.	Urinary Nitrogen gms.	Plasma (sugar) mg. per 100 c. c.	Weight lb.	Insulin units
Aug.									
24	60	60	6	804	0	.. ....	.....	18	2
25	60	60	6	804	0	.. ....	154	....	2
26	60	60	6	804	0	.. ....	.....	18	2
27	60	60	6	804	0	8.30	.....	....	2
28	60	60	6	804	0	4.42	.....	18	2
29	60	60	6	804	0	4.23	.....	....	2
30	60	60	6	804	0	3.53	173	20	2
31	60	60	6	804	0	4.67	.....	....	0
Sept.									
1	60	60	6	804	0	5.47	159	20	2
2	60	60	6	804	0	841	140	....	2
3	60	60	6	804	0	5.88	.....	21	2
4	60	60	6	804	0	6.97	.....	20	2
5	60	60	6	804	0	7.06	.....	....	2
6	60	60	6	804	0.89	6.65	230	....	2
7	60	60	6	804	5.69	7.50	.....	21	2
8	60	60	6	804	7.27	7.92	.....	....	2
9	60	10	16	394	9.05	8.35	.....	21	2
10	60	10	16	394	2.29	6.39	.....	....	2
11	60	10	16	394	0	5.57	.....	22	2
12	60	10	16	394	0	5.11	.....	....	2
13	60	10	16	394	0	3.61	.....	21	2
14	60	10	16	394	0	6.52	.....	....	2
15	60	10	16	394	0	4.45	.....	22	2
16	60	10	16	394	0	8.48	.....	....	2
17	60	10	16	394	0	3.95	.....	21	2
18	60	10	16	394	0	7.89	.....	....	2
19	60	10	16	394	0	8.57	.....	22	2
20	60	10	16	394	0	6.56	.....	....	2
21	60	10	16	394	0	7.23	.....	21	2
22	60	10	16	394	0	7.15	.....	....	2
23	60	10	16	394	0	9.35	126	22	2
24	60	60	6	804	0	5.90	133	....	2
25	60	60	6	804	1.72	7.78	.....	20	2
26	60	60	6	804	3.72	5.42	.....	....	2
27	60	60	6	804	8.24	7.59	.....	20	2
28	60	60	6	804	3.57	4.99	.....	....	2
29	60	60	6	804	5.02	4.29	.....	20	2
30	60	60	6	804	6.23	5.93	.....	....	2
Oct.									
1	60	60	6	804	8.72	12.15	.....	21	2
2	60	60	6	804	10.15	6.20	.....	....	2
3	60	10	11	374	7.05	4.89	254	21	2
4	60	10	11	374	5.83	7.38	.....	....	2
5	60	10	11	374	0	6.65	.....	21	2
6	60	10	11	374	0	7.09	.....	....	2
7	60	10	11	374	0	7.38	.....	19	2
8	60	10	11	374	0	5.98	.....	....	2
9	60	10	11	374	0	7.15	.....	20	2
10	60	10	11	374	0	4.81	.....	....	2
11	60	10	11	374	0	7.05	.....	20	2
12	60	10	11	374	0	8.30	.....	....	2
13	60	10	11	374	0	4.97	.....	21	2
14	60	10	11	374	0	5.17	159	....	2
15	60	10	11	374	0	.. ....	.....	20	2
16	60	10	11	374	0	4.67	.....	....	2
17	60	10	11	374	0	5.64	.....	21	2
18	60	10	11	374	0	6.57	.....	....	2
19	60	10	11	374	0	6.11	100	20	2
20	60	10	11	374	0	.. ....	.....	....	2
21	60	10	11	374	0	.. ....	.....	....	2
22	60	10	11	374	0	6.63	220	21	2
23	60	10	11	374	0	6.66	175	....	2
24	60	10	11	374	0	7.32	152	20	2
25	60	10	11	374	0	5.47	.....	....	2
26	60	10	11	374	0	5.68	.....	20	2
27	60	10	11	374	0	5.71	.....	....	2
28	60	10	11	374	0	8.39	125	20	2

REFERENCES

1. Allen, F. M. J. Metabolic Research, 1, 1922, Jan. and Feb. Pathology of Diabetes.
2. Allen F. M., and Sherrill, J. W. J. Metabolic Research, 2, 1922, 803-985. The use of insulin in diabetic treatment.
3. Allen, F. M. J. Metabolic Research, 3, 1923, 61-176. The influence of fat and total calories on diabetes and the insulin requirement.
4. Banting, Campbell, Fletcher, Joslin, Wilder, Williams, Fitz, Geyelin, Woodyatt, Allen and others. J. Metabolic Research, 2, 1922, November-December.

INSULIN TREATMENT OF DIABETES MELLITUS*

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The introduction of insulin into the medical armamentarium accentuates the value of an accurate knowledge of food values. The use of insulin makes it possible to increase the diet of a person with diabetes mellitus whose urine is sugar free a certain amount without the reappearance of sugar in the urine. The amount by which the diet may be increased varies according to the carbohydrate burning power of the lot of insulin being used. The potency varies in certain lots of the drug. The presence of a small amount of sugar in the urine is permissible with insulin treatment, but the beneficial efefct of building up the utilization of carbohydrates by the patient's own body appears to be lessened. The most rapid progress in the clinical management of patients is made in those whose urine is kept sugar free.

POTENCY OF INSULIN UNITS

The carbohydrate burning power of insulin varies from one to four grams per unit of insulin. I have found only one lot of the Eli Lilly preparation (iletin) which consumed the full four grams. I have made it a practice to increase the diet on which the urine of the patient is sugar free by such amounts as will add 20 grams of carbohydrate to each meal for every five units of insulin given. As a rule insulin has been given by hypodermic injection in five unit doses. It has been administered fifteen minutes before each meal. After two days of study of volume output of sugar in the urine, the diet is reduced to the point where the patient should be just free of sugar or carry one-half of one per cent of sugar in the urine. This is very simple, and a casual reference to the diet list of Case 1 (Table 1) will show how really easy this is.

BIOLOGIC ACTION OF INSULIN

Wherever possible the blood sugar should be estimated before starting insulin treatment. After the diet has been finally adjusted I have the practice of estimating the blood sugar as far after the meals as posisble, as the delayed symptoms of overdosage are most likely to occur then and are most profound when they do occur. The symptoms that arise between the time insulin is given and the absorption of slowly digesting carbohydrates are readily prevented by adding milk to the diet and instructing the patient to drink the milk during the first portion of the meal.

The value of insulin rests not alone in its enabling the patient with diabetes to eat more food, but it also causes a very prompt disappearance of the ketone bodies. I have observed that the aceto-acetic acid clears up first, then the acetone disappears and ammonia becomes normal in a somewhat irregular fashion. Most frequently I believe the acetone has disappeared before the ammonia content of the urine became normal. In one very severe case, the ammonia has continued to remain slightly above normal even after two months of treatment, although the general clinical improvement has been very remarkable. The use of insulin also demonstrates that the utilization of carbohydrate by the body cells is necessary to life in man.

TYPE OF DIET USED

To facilitate the management of cases of diabetes mellitus, I have calculated the carbohydrate, protein, and fat content for all of the ordinary foods in each 30 grams of the food (Table 2). The study was made on data reported in bulk by the Connecticut Board of Agriculture. These figures enable patients to receive accurate information concerning the amount of food that may be safely eaten. These data are valuable for the treatment of patients without insulin as well as for those on insulin.

In all instahces the patients have been required to weigh and measure all food ingested. Although it is very trying to weigh accurately all food and to measure certain liquids, there is no other pathway to future life in diabetes mellitus. The patient must choose between one of two evils, as any sort of treatment that does not call for weighing of the food has little or no value.

My diets have all been worked out by myself, and have all been arranged so as to give sugar and fat in such proportions that the carbohydrate would take care of the ketogenic properties of the fats. Each diet was based on the total caloric requirements of the patient. The caloric requirements in all instances have been estimated by Maynard. The sugar and fat contents were arranged so that one gram of sugar would take care of the ketogenic properties of two grams of fat. Of course, it is understood that 58 per cent of all proteins ingested are converted into sugar. Two-thirds of a gram of protein was supplied for each kilogram of body weight. All of my patients are on high fat, low carbohydrate, and low protein diets. In all patients on diet alone the evidences of acidosis disappeared in about two weeks, if the patient adhered to the diet. The only instance in which the patient failed to clear up all sugar, ketone bodies, and to have a normal ammonia content in the urine occurred as a result of eating more than was permissible.

The value of high fat diet before and after insulin is illustrated in Case 1. On admission the patient was placed on a desugarization diet (Table 1), which was followed until March 23rd, 1923.

Case 1 (3959). Mrs. G. A. V., aged 21 years, was admitted to the Clinic on December 16, 1922, because of diabetes mellitus. Father had asthma; mother had died from some unknown cause; three sisters were living and well; one brother had died of influenza. There was no diabetes mellitus nor obesity in the family history. The patient had always been healthy until one year before admission when she began to eat large amounts; became very thirsty, and passed large quantities of urine. At the same time she began to have attacks of severe pain in the right hypochondrium associated with vomiting, but there was no jaundice nor post prandial distress. On admission the diabetic triad of symptoms persisted. Constipation was quite marked. The patient's physical endurance was much reduced and menstruation had stopped two months previously. On examination the patient was found to weigh 94 lbs. (42.7 kg.). The height was 60 inches. The general physical examination was negative, except for a peculiar greenish discoloration of the skin. The twenty-four hour quantity of urine was 2,333 c. c. with a specific gravity of 1,033; acetone was present, and urine contained 81.65 grams of sugar for the twenty-four hours. The blood sugar was 425 mgm. for each 100 c. c. of blood. The patient was placed on a desugarization diet (Table 1). In four days the urine was sugar free, the acetone had disappeared, and the ammonia content was 724 mgm. in a twenty-four hour specimen of 2,500 c. c. The blood sugar was 122 mgm. for each 100 c. c. of blood. The patient remained on the same diet until March 23rd, 1923, as every attempt to increase the diet from either the carbohydrate or protein side led to the appearance of sugar in the urine. After a short time of dietetic treatment acetone appeared in the urine, and continued to be present until insulin treatment was begun, although there was never any increase in the ammonia content of the urine. While on the original diet the patient's weight increased to 105 lbs. (47.7 kg.) while she was caring for an eleven-room house and cooking the meals for four persons besides herself. The greenish hue of the skin disappeared. It was probably a poisoning effect from saccharine, which had been used freely. On March 23rd, 1923, the diet was increased by 39.4 grams of carbohydrate, 55 grams of protein, and 83.4 grams of fat. Insulin treatment was begun on the same day. The blood sugar was 122 mgm. for ecah 100 c. c. of blood before insulin treatment started. Sugar did not appear in the urine. After four days the blood sugar taken four hours after breakfast was 150 mgm. for each 100 c. c. of blood, and 160 mgm. for each 100 c. c. of blood taken four hours after the noon meal. The patient has continued insulin treatment until the present time. Her weight is now 116½ lbs. (52.7 kg.). She feels perfectly well. The menses returned after four weeks of insulin treatment. The patient has always

prepared her own diet, and injected the insulin.

CASE ILLUSTRATING VALUE OF INSULIN TREATMENT IN CHILDREN

Case 2 (4262). T. R., female, aged 9 years, was admitted to the Pueblo Clinic, January 11th, 1923, complaining of loss of weight and nocturia. Paternal grandmother was supposed to have died of diabetes mellitus. Father, mother, and one sister were living and well. The trouble had begun five weeks before admission when the teachers in the nutrition class noted that there was a steady drop in the patient's weight. The teachers also observed that the patient asked to leave the classroom more frequently than usual during school hours. At the same time the mother noticed that the patient got up many times during the night. The appetite gradually became excessive. The school teachers recommended the child be examined. On examination of the urine the doctor found sugar.

On admission to the Clinic the patient was so weak as to make walking difficult. The twenty-four hour quantity of urine was 5,750 c.c. on the day of admission to the Clinic. The patient complained of sharp pains in legs, thighs, and in the left side of the abdomen. On examination the weight was 47½ lbs. (21.5 kg.); the height was 49 inches. The tonsils were large. The skin was very dry. Marked photophobia was present. The blood pressure was 78 systolic and 50 diastolic, and the pulses were 90 each minute. The passed specimen showed sugar present as well as aceto-acetic acid and acetone. The patient was put on a high fat (67.5 grams), low carbohydrate (12.5 grams), and low protein (23 grams) diet as indicated by her basal caloric requirement. At the end of six days the urine was sugar free, acetone, and aceto-acetic acid present, and the ammonia content was 1,245 Gms. in twenty-four hours. The quantity of urine had dropped to 1,700 c. c. The diet at this time was increased by seven grams of carbohydrate, two grams of protein, and six grams of fat. Four days later there was sugar in the passed specimen. Acetone and aceto-acetic acid were present. The diet was then reduced to the former quantities, but it was impossible to again desugarize the patient. The acetone and aceto-acetic acid continued present until the 22nd of February when the first injection of insulin was given. The following day, after fifteen units of insulin the urine was sugar free, the acetone, and aceto-acetic acid had disappeared. There were 204 mgm. of ammonia in a twenty-four hour specimen of 1,000 c. c. The diet was increased gradually from day to day until she was receiving a total of 95 grams of carbohydrate per day together with 83.1 protein, and 127 grams of fat. On this diet she has remained, except temporarily, until the present time. The insulin has gradually been reduced until she is taking five units each day. There is no evidence of diabetes. The diet has been increased temporarily on several occasions to see if the patient could eat more. In no instance has sugar appeared in the urine as a result of these trials. At this time the general condition is excellent; the weight is normal for her height and age, and she has as much endurance as any child of her age. The dietetic treatment was carried out by the patient's mother who has also administered the insulin. No blood sugar estimations were made in this case and the treatment has been equally as satisfactory as in those cases where the blood sugar was estimated.

SEVERE DIABETES WITH PROPER CO-OPERATION WITHOUT USE OF INSULIN

Case 3 (2166). Mrs. A. C M., aged 59 years, was admitted to the Clinic on October 6th, 1922, because of pain on the top of the head. Family history was negative. Three children tended to be obese, as well as her husband. She had formerly been quite obese The menopause occurred at the 47th year. She had had influenza, measles, and pertussis in previous years. The chief complaint appeared about twelve years before admission. For the same length of time she had complained of excessive thrist, excessive appetite, and polyuria. Shortly before admission a brother had died, and the pain on top of the head had become severe. She was drinking about one gallon of liquids a day on admission. She also complained of burning in hands, and many aches in the legs. On examination the weight was found to be 122½ lbs. (55.6 kg.) and th e height 57½ inches. Blood pressure was 150 systolic and 90 diastolic. The general physical examination revealed no abnormal findings. The patient was placed on a low carbohydrate (17 grams), low protein (37 grams), and high fat (112 grams) diet. The patient refused blood sugar examinations. The urine became sugar free in 16 days, and has remained so until the present time. Before the patient started on dietetic treatment she developed a rather well marked retinitis, which subsided as soon as the urine was sugar free. This patient has rigidly aherded to the diet, and as a result her strength has increased, and a chronic otitis media which has troubled her for years has cleared up almost entirely. The hearing which was poor for many years has improved somewhat. On the diet, the patient's weight gradually dropped to 115 lbs. (52.2 kg.) at which point it remained for several months. During the last three months the weight has gradually increased to 123 lbs. (55.9 kg.) which is one-half (.2 kg) pound more than she weighed before starting to diet. She has done her own housework, which consists in taking care of five rooms and cooking for two persons besides herself. This patient has steadfastly refused to take more diet, as she says: "I would not take a chance on getting sugar into my urine again. I have suffered enough for diabetes, and if there is any way for me to get along, I am not going to spoil it by eating more." Severe diabetes, by careful management, is not hopeless even without insulin.

SEVERE DIABETES IN YOUNG ADULT

Case 4 (710). Mrs. C. O. M., aged 27 years, was admitted to the Pueblo Clinic on July 8th, 1922, complaining of being tired, and that sugar had been present in the urine for a period of two years. At the time of the onset of the trouble, she weighed 145 lbs. (65.9 kg.) and had always been in very good health. She drank large quantities of water at that time but the thirst had gradually decreased. She had a large appetite, and was troubled a great deal with painful teeth and gums. During the month before admission there had been some swelling of the legs.

On examination the weight was 120 lbs. (54.5 kg.) and height 67 inches. The systolic blood pressure was 110 and the diastolic 80. The gums were red and swollen. There were several fillings and crowns. There was a marked fruity, sweetish odor to the breath. The general physical examination was negative except for slight edema of both legs. She was placed on low carbohydrate (23 grams), low protein (35 grams), and high fat (150 grams) diet. At the end of eight days the urine was sugar free, and a previous blood sugar of 264 mgm. had fallen to 100 mgm. for each 100 c. c. of blood. The weight continued to drop and at the time she was sugar free she weighed 116½ lbs. (52.9 kg.). She did not adhere strictly to the diet, and on September 28th, the weight had dropped to 105½ lbs. (47.9 kg.), and the urine contained 10.31 grams of sugar in a twenty-four hour quantity of 1,875 c. c. Acetone and aceto-acetic acid were both present. On that date she decided to take the chiropractic treatment cure, and I saw no more of her until February 24th, 1923, when she weighed 97¾ lbs. (44.4 kg.). She was growing weaker each day, and had not menstruated for nearly one year. On February 27th she again came to the Clinic. The weight had dropped to 83 lbs. (37.7 kg.). The patient was so weak she could not stand alone. The skin was very pale and the lips were drawn tightly over the teeth. The appearance was cadaverous, because of a parchment like skin condition. She could not walk without help. Abscesses had formed about the roots of several teeth while the crowns on others were painful. She wished to be alone and not troubled by other people. An acute bronchitis had rapidly reduced her strength. She appeared to be devoid of personality, although she was formerly a very attractive girl. The facial expression was one of extreme agony. Physical examination showed pulses were 120 each minute and very feeble. The blood pressure was 100 systolic and 70 diastolic. The arteries were slightly thickened. The respirations were fifteen each minute, very labored, and characterized by short periods of apnea. The tension of the eyeballs was normal. The examination of the heart and lungs was negative. The patellar and achilles reflexes were present. The generalized weakness was estimated as three plus on a total basis of four. The gums were swollen and red. The site of a recent tooth extraction was much swollen and very tender. The blood sugar was 370 mgm. for each 100 c. c. of blood. The urine was 2,190 c. c. in amount for the preceeding twenty-four hours, and contained 236 grams of sugar. Acetone was reported as four plus; acteto-acetic was present and the ammonia content of the urine totaled 5.83 grams for the preceding twenty-four hours. She was admitted to Parkview Hospital at once. During the first night she was given three meals consisting of the known quantity of food (13.5 Gm. carbohydrate, 13.5 Gm. protein and 45 Gm. fat), that could be cared for by the particular lot of insulin on which she was placed. Her bowels had not moved for one week, and poor results were obtained by drastic purgation and medicated enemata. The next morning she felt stronger; breathed easier, but had a slight headache, and the pulses were very frequent. The second day she felt better, and on the first of March the dosage of insulin was increased from five to seven and one-half units three times each day. The insulin was administered fifteen minutes before each meal. During the morning of the second of March the patient became delirious. She thought people were talking about her; saying she was crazy; she felt all mixed up; cried a great deal; complained of pain in back of neck and lower thoracic spine. She said she felt warm. She vomited after the evening meal. The facial expression was fixed. The blood sugar was 223 mgm. for each 100 c. c. of blood. The urine contained two per cent of sugar. She was given two ounces of 10 per cent glucose solution fearing overdosage of insulin. She became quiet but still had ideas of persecution. The next day she was less nervous, but still confused. She did not answer when spoken to. During the course of the day she became very restless. There was a marked sweetish, fruity odor to the breath, and the lips were extremely dry. Insulin treatment was discontinued. On the following day she was very quiet and looked better. She was kept on starvation diet for twenty-four hours. On the sixth of March the patient was put on a new lot of insulin, and no nervous symptoms followed. The patient has continued to take five units of insulin fifteen minutes before each meal until the present time. The urine contains 0.55 per cent of sugar as a rule, but contains no acetone, no aceto-acetic acid, and the ammonia content in the urine is normal. The blood sugar ranges about 170 mgm. for each 100 c. c. of blood. After three weeks of treatment the obstinate constipation disappeared. The body weight has increased to 113 lbs. (51.3 kg.), a total gain of 30 lbs. (13.5 kg), but fluctuates a little from time to time, depending upon the potency of the lot of insulin she is using. She does all of her own housework. After six weeks of treatment she walked twenty-five blocks without undue fatigue. This patient is a nibbler and her improvement is probably lessened quite considerably by this habit. Without insulin she could not be kept sugar free on any diet that was compatible with physical vigor, while with it she consumes 36 grams of

TABLE 1. Diet illustrating the way foods are used to secure the exact number of elements required by the patient. If patient passes three grams, for example, of sugar every twenty-four hours an examination of diet sheet shows what food must be taken away to render patient's urine free of sugar.

DESUGARIZATION DIET

		Carbohydrates	Protein	Fat
BREAKFAST				
Eggs	2		8.04	6.30
Bacon	1 ounce		5.	15.
Coffee	1 cup			
Cream	1 ounce	1	1.05	6.
Butter	1 ounce			25.
Bread	½ ounce	7	.45	
NOON DAY				
5% Vegetables	4 ounces	3	.72	.84
Broth 1 or more cups				
Butter	1 ounce			25.
Meat, fish or chicken	2 ounces		16.	10.
Tea or coffee	1 cup			
Cream	1 ounce	1	1.05	6.
SUPPER				
5% Vegetables	4 ounces	3	.72	.84
Broth 1 or more cups				
Meat, fish or chicken or Eggs	2 ounces 2		16.	10.
Tea or coffee	1 cup			
Cream	1 ounce	1	1.05	6.
Butter	1 ounce			25.

TABLE 2.—Illustrating section of data computed so as to determine quickly the quantity of foods that may be eaten by patients with diabetes mellitus.

DIABETIC FOOD TABLES

(Quantity [in grams] in each 30 grams or one ounce.)

FRUITS

Food	Carbohydrate	Protein	Fat	Carbohydrate	Protein	Fat
	5 Per Cent					
Green Olives	1.8	2.14	12.9	0.54	9.64	3.87
Ripe Olives (2% fat)	4.0	2.00	21.0	1.20	0.60	6.30
Strawberries	5.0	1.00	0.6	1.50	0.30	0.18
	10 Per Cent					
Grapefruit	6.0	.. ....	.. ....	1.80	.. ....	.... ..
Alligator Pears	7.0	.. ....	.. ....	2.10	.. ....	.. ....
Watermelon	7.0	0.3	0.1	2.10	0.09	0.03
Lemons	7.0	1.0	0.9	2.10	0.30	0.27
Cranberries	8.0	0.5	0.7	2.40	0.15	0.21
Blackberries	8.0	0.9	2.1	2.40	0.27	0.63
Peaches	9.0	0.5	0.2	2.70	0.15	0.06
Loganberries	10.0	.. ....	.. ....	3.00	.. ....	.. ....
Muskmelons	10.0	0.7	0.3	3.00	0.21	0.09
Raspberries	10.0	1.0	.. ....	3.00	0.30	.. ....

carbohydrate, 45 grams of protein, 95 grams of fat every twenty-four hours and enjoys life very much.

HIGH FAT DIET

Although a high fat diet has not been accepted by some authors who have a dread of fat in diabetes, I have used it. The estimation of diet so as to utilize the anti-ketogenetic properties of carbohydrates permits of a rapid desugarization of the patient if the basal caloric requirements have been properly estimated. I do not ordinarily use fasting days as they lead to the loss of precious pounds and ounces of body weight which the most scrupulous care frequently cannot replace. In fact, the constant loss of body weight by the fasting method requires, if one is to manage the case properly, a frequent estimation of the basal caloric requirement, which becomes lower with each loss of weight. No great mental horizon is required to foresee patients gradually dying of inanition. In fact, that is one of the drawbacks to the fast day treatment. The value of the high fat, low carbohydrate and protein diets is well illustrated in a severe diabetic (Case 3) who is an ideal patient and in a long period of time has never slipped the slightest bit from the dietetic pathway. It is the little nibbles that kill by degrees in diabetics, while sudden carbohydrate debauches end life's journey abruptly.

To the Insulin Committee of Toronto and through its recommendation to the Eli Lilly Company as well, I have been indebted for the privilege of using insulin. The world owes to Banting and Best an expression of extreme gratitude for contributing such a reliable adjunct to the treatment of diabetes mellitus.

RADIATION OF THE FEMALE PELVIS IN NON-MALIGNANT DISEASES.*

DR. J. W. CATHCART, El Paso, Texas.

If we are to accept the dictum of Dr. Howard Kelly based on an experience of thousands of cases during the past eight years that "he who would give to his patient the same consideration he would give to his wife or sister, must put radium first in the treatment of fibroids," (The Therapeutic Gazette, Nov. 1922) it will be necessary to elucidate much of the confusion now present in the average general professional mind. That confusion still exists is evident by a local survey of the operations for fibroids. During 1922 in our home city of El Paso, Texas, with a population of eighty thousand, thirty-seven patients were operated upon for fibroids, with two deaths, a mortality of 5.4%. Twenty-five of these patients were past thirty-eight years of age and with the possible exception of two in whom the appendix was removed, no contra-indications to treatment with x-ray or radium was recorded. We are therefore led to believe that the reason for not treating some of these patients with x-ray or radium is because of a lack of familiarity with the potency of these remedies. A careful survey of the x-ray and radium literature reveals no evidence of a waning confidence in the effectiveness of these remedies, nor do we hear of any untoward results from the surgeons or pathologists that would indicate the workers in this speciality are over zealous.

I believe the statement of Dr. Rudolph Matas before the American Radium Society at New Orleans in 1920 that "over sixty per cent of fibroid cases on which he had previously operated were now being treated by radium" may be taken as fairly representative of the position now taken by the leading surgeons of the country.

I wrote Dr. Matas on March the 9th, 1923, asking him if he had in any way changed his position in the last three years, and he replied "no reason to change my opinion or my views."

(**Read at the Forty-First Session of the New Mexico Medical Society at Albuquerque, June* 19-21, 1923.)

It is therefore in the hope of more fully acquainting the general profession with the subject of "Radiation of the Female Pelvis in Non-malignant Diseases" that I am presenting this paper.

Omitting the histological and pathological studies and dealing with the subject from a clinical standpoint, we have divided our cases into five groups:

First—Menopausal Derangements.
Second—Fibroids.
Third—Tuberculosis.
Fourth—Breast Malignancies.
Fifth—Neurotic and Inflammatory Conditions.

GROUP 1—MENOPAUSAL DERANGEMENT

Women in the menopausal cycle whose menstrual history is so at variance with the normal as to be classed as pathological, even after a physical examination has revealed no gross anatomical pathology. These women exhibit all forms of disturbances typical of this period, the commonest of which are, menorrhagia, nervous irritability, periods of depression and various neuroses, or a combination which in many instances is sufficient to render them semi-invalids over a period of several years, and very often by the time the menopause is fully established they become physical and nervous wrecks.

Internal medicine offers these women very little. After having tried glandular therapy and tonics, to no avail, the patients are told that it is perfectly natural for them to have these nervous disturbances and their irregular profuse hemorrhages, and that time and suffering is all that they have to look forward to. Surgery first offers a curettage and then a hysterectomy.

It is to this class of sufferers that are by no means few in number, that radium may be offered as an almost unfailing specific. In from three to six months after one radium treatment, these patients are in possession of a physical and nervous energy, the equal of, and in many instances surpassing the best health they have ever enjoyed.

GROUP 2—FIBROIDS

In this group are included fibroids that are demonstrable by physical examination, preferably those that are no larger than a four months pregnancy, that are not pedunculated, that are not causing pressure symptoms and in which the patients are approaching the menopausal cycle.

It would be permissible to use radium or x-ray in a woman of the child bearing period, if by so doing she might be saved from a hysterectomy, although myomectomy in young women is to be preferred. Radiation might also be the treatment of choice in some of the larger fibroids where intercurrent diseases or the general physical condition makes surgery dangerous or impossible.

The patients in this group most often seeking relief are those with the submucous and intramural type, because it is in these cases that hemorrhage is most frequent. These patients present a degree of anemia not entirely accounted for by the loss of blood, and have a cachexia and asthenia of toxic type which render them poor surgical risks. Many of these cases are being referred for radiation with good results.

We may with positive assurance state that from the standpoint of efficiency, safety and morbidity at least sixty per cent of fibroids and all idiopathic hemorrhagic conditions in the menopausal cycle formerly treated by surgery are today better treated by radium or x-ray.

GROUP 3—TUBERCULOSIS

Tuberculous women who have progressed in the course of the disease to a point where maternity is practically certain to result fatally to both mother and child; such a point is represented by tuberculosis in both lungs, with cavity in one, or where there is a progressive activity covering one fourth of one lung, with high temperature, rapid pulse and other indications of marked absorption; and in cases that are in a fairly advanced stage of tuberculosis.

Many women of the above type suffer from functional amenorrhea,

dysmenorrhea, pre-menstrual and post-menstrual storms, many of them possess a supersexuality and remain in constant fear of becoming pregnant.

In tuberculous women suffering from one or a combination of the above symptoms, having determined that the woman is unable to bear children and that the menstruation is a drain upon her physical well being, we should not hesitate to suppress the menses,since menstruation has no function other than reproduction.

Such disturbances as occur in the internal secretions, quickly readjust themselves to the new order of things, and a woman thus relieved is in a better position to resist the inroads of tuberculosis.

GROUP 4—BREAST MALIGNANCIES

In women with bilateral breast carcinoma and mediastinal involvement in whom amputation does not seem advisable.

In women with carcinoma of a remaining breast following a previous amputation where there is no cervical and mediastinal involvement.

In women in the menopausal cycle who have had one breast removed for carcinoma and who show no evidence of recurrence in the remaining breast.

In the above classes if there is a breast engorgement at the menses, it seems desirable to relieve this by suppressing same, both from the standpoint of bodily comfort and as an aid in combating the disease.

Statistics recently compiled by Dr. A. R. Kilgore of San Francisco show that every woman who has had a breast amputation and survives for five years is three times as liable to develop cancer in the other breast. As the occurrence of cancer of the breast falls rapidly after the menopause it would seem to show clearly the desirability of bringing about the decreased blood and lymph engorgement that accompanies the atrophy of the menopause.

GROUP 5—NEUROTIC AND INFLAMMATORY CONDITIONS

Includes dysmenorrhea, menorrhea, endometritis and cervicitis of young and middle aged women.

This group of cases require much caution if radium and x-ray are to establish their great value without reflection, owing to the danger of permanent sterility and the possibility of remote effects not fully determined, such as fibrous changes in the endometrium.

Time and experience will undoubtedly develop a technic that will be safe and applicable to many of these cases, but for the present we should remember that "he makes haste who makes haste slowly."

It has been fairly well established that from one hundred and fifty to two hundred milligram hours of radium constitute a safe dose in young women suffering from the above conditions. This may be increased to three hundred milligram hours in some selected cases. This dose may even be exceeded in severe idiopathic hemorrhages of young girls, but small doses, repeated if necessary, should be the method of choice. X-ray treatment must be varied with the type of equipment used and the thickness of the abdominal wall.

CONTRA-INDICATIONS

Radiation and especially radium, should not be used in the presence of infections in the adnexa, as the probabilities of lighting up an acute or latent infection with a subsequent local peritonitis are great.

The possibility of a fibroid degenerating into sarcoma is very remote and this should be greatly decreased following radiation treatment.

The only sarcomas of the uterus in women past thirty years of age that we have seen, have been in women well past the menopause who have developed a rapidly growing tumor. A history of this kind should always suggest malignancy, as fibroids do not grow to any great extent after the menopause.

John G. Clark after reviewing the work in the Gynecological Department of the University Hospital in Philadelphia, states that "based both on clinical and laboratory conclu-

sions, we deal with fears solely within the domain of fallacious supposition in discussing the dangers of sarcomatous changes in myomas and fibromas. Even were these fears justified in a much larger measure, there would still be no argument against the use of radium, since these tumors react most favorably to its influence."

Carcinoma of the fundus is always to be considered in any hemorrhagic condition and if the history does not clearly show that the hemorrhage is associated with the menstrual period, a diagnostic curetment should be performed.

The question of the effect on the sexual life is brought up in practically every case. It may be definitely stated that no change whatever may be expected. The result being no different from that of a normal menopause.

TECHNIC—GROUPS 1, 3, AND 4

For the menopausal derangements, the suppression of the menses in the tuberculous women and those with cancer of the breast. Fifty milligrams of radium screened with ½m.m. of silver and rubber is used intra-uterine for eighteen hours.

GROUP 2

In the treatment of fibroids, radium is the medium of choice in the small tumors, while the x-ray is preferred in the large tumors and those of the multiple and subserous types. Where radium is used one hundred milligrams filtered with ½ mm. of silver and 1 m.m. of brass covered with rubber tubing and distributed throughout the length of the uterine canal is used allowing it to remain in place sixteen to twenty hours.

Where x-ray is used an average abdominal wall requires four hundred milliampere minutes of two hundred thousand peak volts at fifty cm. distance filtered through 1 mm. of copper and 1 mm. of aluminum.

CONCLUSIONS

Radiation by means of x-ray and radium offers a safe and speedy relief from the derangements of the menopausal cycle.

A reduction of at least sixty per cent in the hysterectomies formerly performed for fibroids, with great economic saving.

One more weapon, in suitable cases, to be used in the fight on the Great White Plague.

An additional ray of hope to hold out to the extensive malignancies of the breast.

A remedy, which under proper administration, has great therapeutic value.

CENTRAL NERVOUS SYSTEM DISEASE ASSOCIATED WITH PERNICIOUS ANEMIA.*

(*Report of Two Cases*)

CHARLES W. MILLS, M. D., Tucson, Arizona.

Case 1. Seen in consultation with Dr. J. I. Butler, Tucson, Feb. 15, 1922.

J. S. Age 50. Physician. Married. Native of U. S.

F. H. Father died of tuberculosis at 43. Mother died of gall bladder disease at 41. One brother probably has tuberculosis.

P. H. No illness up to P. I. Always strong and well. Good habits.

P. I. Felt perfectly well till about a year ago. First symptom noticed by patient was a numbness of fingers, but for two or three months previous to this, wife had noticed that he looked pale and that he seemed to tire easily. Had been working hard and losing sleep. Numbness was present all the time and in both hands, poor sensation in fingers and a little soreness in arms along nerves. Soon began to notice that he was tired and a little short of breath on climbing stairs. These symptoms gradually increased. In June, 1921, blood was examined and marked anemia found. Had never had a blood examination before.

About the beginning of the illness, in January, 1921, had an infected finger from attending a puerperal case, streptococcus, lasting two months, and finally clearing up. Thinks the numbness and tired feeling antedated this infection but not sure.

(**Read at Meeting of Pima County Medical Society, March* 16, 1923.)

In August 1921 had a severe attack of diarrhea accompanied by a little fever lasting three weeks. No blood in stools. Was in St. Louis at time, where there was an epidemic of diarrheal disease. Felt very weak following.

About September 1921 began to notice numbness in legs and arms and later in trunk and face; gait has gradually become ataxic, and muscles spastic. Respiratory system, no symptoms. Cardio- vascular. Pulse when well, 80 to 85. Since illness, 95 to 100. Slight dyspnea on exertion. Last three weeks a little edema of feet. Gastro-intestinal. No symptoms except for eructation of gas and much flatus. Urinary system, no symptoms. Nervous-muscular system. See above for numbness, ataxia and spasticity. Never of a nervous temperament. No headache. Sleeps well. Possibly a little fever at night, but has not taken it. Night sweats moderate. No bleeding from any source that he knows of.

P. E. Well-nourished, grey-haired man. Skin strikingly pale and of a lemon-yellow tint. Mucous membranes very pale. Heart and lungs show no abnormalities. Spleen easily palpable. Some edema of ankles.

Nervous system. Motion of eyes good. Tongue protruded straight. Muscular strength in arms and legs good. Considerable ataxia in movements of arms and legs. Gait spastic. Romberg sign positive.

Touch and pain very poorly felt in hands and feet, diminished in arms and legs, and perhaps somewhat also over abdomen; good in face and neck. Muscular sense in arms and legs very poor. Considerable astereognosis.

Reflexes, pupils equal and react to 1. and a. Knee jerks exaggerated. Some ankle clonus. Babinski reflex shows dorsal flexion.

Urine negative.

Feces. No parasites or ova.

Blood, various examinations from January 1922 to August 1922 showed Hgb. 30 to 55%. R.B.C. 1,100,000 to 2,600,000. Color index usually about 1.5; poikilocytosis and anisocytosis. Few megalobasts once. W.B.C. 3,300 to 5,000. Differential count showed relation increase of lymphocytes. Subsequent history; disease progressed with some slight remissions till August 1922 when patient began to have symptoms of bladder irritation and diarrhea. Urine contained pus and cystoscopy showed cystitis. Died latter part of August.

This is very clearly a case of pernicious anemia, with fairly typical history and blood findings, but the feature of the case we are interested in in the present connection is the associated central nervous system disease. You will note that the first symptom complained of by this patient was numbness in his fingers and that throughout the course nervous disease symptoms were prominent. I shall therefore use this case as a typical one to discuss the changes in the central nervous system that occur in pernicious anemia.

The disease has been variously designated as "The Anemic Disease," as "Combined Sclerosis," and as "Subacute Combined Degeneration." The latter name would seem best to describe the condition and to be preferred.

As to its etiology, it occurs in connection with pernicious anemia, almost always in the fourth, fifth or sixth decade, males and females are equally affected, and no definite hereditary tendency has been established, although some authors (Russell) believe that it is more common in those of a neuropathic heredity. Syphilis is not a factor. The preceding toxic disturbances, especially gastro-intestinal disease with diarrhea, which are considered of importance in pernicious anemia, are often formed.

The pathology is interesting and unlike that of any other disease. The process usually begins in the lower dorsal region of the spinal cord in the center of the posterior columns, then spreading into the lateral columns and later still into the anterior columns. From their starting point the lesions extend up and down the cord, sometimes as high as the internal capsule. The lesions may extend until all the white matter in a given section of the cord is involved except a small ring surrounding the grey matter. The pathological change consists of a swelling followed by a fatty degeneration of the medullary sheaths, and finally a gradual disappearance of the degenerated contents of the medullary sheaths. A most distinctive feature is the fact that there is no subsequent proliferation of neurogliar tissue, such as takes place in other degenerative diseases of the cord.

The blood changes of pernicious anemia may precede the appearance of the spinal cord disease or may follow at a considerable interval. Byron

Breamwell reports a case in which for three years there was no evidence of pernicious anemia, the patient finally, however, showing a typical blood picture and dying of pernicious anemia.

As to its pathogenesis the most reasonable view is that the anemia and the spinal cord degeneration are not dependent the one upon the other, but that both have their origin in some obscure toxemia, perhaps from the gastro-intestinal tract.

The symptoms of the disease are usually of insidious onset, but the latter may occasionally be acute, with headache, vomiting, malaise or fever. At the start there are usually subjective sensations of numbness, tingling, burning, or coldness in the feet and hands. This is accompanied by an objective sensory loss of stocking and glove distribution. Touch, pain and temperature sensations are all affected. Muscle sense and sense of position are early lost, causing sometimes a rather marked astereognosis and a positive Romberg's sign. Girdle sensations, gastric crises, and lightening pains as in tabes are sometimes present. There is often an early loss of sexual power. On the motor side are found paraplegia and ataxia. The paraplegia is commonly spastic at the start, later changing to flaccid, but may remain spastic to the end, or occasionally be flaccid from the beginning. As the lesion progresses, the paraplegia involves more and more of the trunk, progressing upward. Paralysis of the sphincter commonly occurs as a late symptom.

The reflexes are peculiarly affected and with the varying types of paraplegia form a distinctive feature of the disease. The peculiarity consists in a varying combination of exaggeration and diminuition of the reflexes. Some of the reflexes may be exaggerated, some diminished, or occasionally vice versa. Absent knee jerks may be combined with a positive Babinski. Both the superficial and the deep reflexes are commonly increased in the early stages, while in the later stages the deep reflexes tend to be diminished or lost.

Trophic changes, muscular wasting and loss of electric excitability, vasomotor disturbance, bed sores, edema, and cystitis are frequent late manifestations. Mental deterioration, mild delirium, drowsiness and torpor are frequent in the late stage.

The symptoms and peculiar color of pernicious anemia are commonly present, and need not be described here.

The duration of the disease is from a few weeks to as long as ten years, with an average duration of about two years.

The differential diagnosis will be considered in connection with the discussion of the second case to be reported, which follows:

Case 2. C. E. Z. Age 60. Occupation nurse. Single. Native of the United States.

F. H. Negative.

P. H. At age of four had typhoid fever, followed by trouble in back so that she had to learn to creep and walk over again. Attacks of quinsy in childhood. At 15 began to have diarrhea, attributed to eating goose eggs. Continued to have attacks usually after eating eggs or meat or apples until about three years ago, since when she has been much better in this respect, though still having occasional not very severe attacks. Following grippe when about 30 had tachycardia for three weeks, and another attack about 5 years ago. Menstrual history normal. Menopause 10 years ago, uneventful. Carbuncle on neck last summer. Has always worked hard. Always been nervous and had frequent crying spells.

P. I. Three years ago began to have feeling of heaviness in arms and numbness in hands, and little later in feet. This has progressed till now her legs feel numb clear to waist. Worse when cold. Had feeling at first as though wind were going right through clothing. Noticed a beginning inability to walk about 6 months ago; getting worse. Feet feel big, and cannot control them well. Has fallen frequently. An increasing unsteadiness of hands. Hands and feet jerky. Has funny creepy feeling all over body, aggravated by movement. No severe pain. No headache or shooting pains. Has been getting weaker. Appetite good and eats well, but has lost weight from 110 to 92 lbs. in last 3 years. During last year has had three attacks of involuntary defecation. Urinates 4 or 5 times at night. Often not at all during day. Recent attacks of palpitation and shortness of breath. No edema. No cough or hemoptysis. Sleeps well.

P. E. Thin woman of enteroptotic habitus. Skin of face and hands tanned. Mucous membranes slightly pale. Teeth good. Thy-

roid not enlarged. Lymph nodes not enlarged.

Pulse, very irregular in force and rhythm, with tendency to coupled beats. Rate about eighty, but variable.

Heart, apex 4th i. s., 7 cm. from midline. Area not enlarged. Impulse feeble. No thrills. Sounds irregular with tendency to coupling of beats. In 3rd i. s. just to left of sternum a systolic whiff on some of the stronger beats. Sounds poorly heard at base.

Lungs, no abnormalities.

Abdomen, soft, no tenderness. Right kidney prolapsed and movable. Liver edge not definitely felt, but liver dulness extends two finger lengths below costal border. Spleen not felt.

Neuro-muscular, pupils equal and react to 1. and a. No strabismus or nystagmus. Tongue protruded straight without tremor. Muscular strength everywhere good. Loss of touch and pain sense in ends of fingers and in palms, with diminution of these senses in rest of hand up to wrists. Temperature sense in fingers and hands much diminished. A similar condition of loss of sensations in toes and feet up to ankles. No sharp line of demarcation of loss of sensibility. Sensation over abdomen also seem a little dulled, but not definitely so. Superficial reflexes active. Right knee jerk very feeble, left good. Babinski shows a dorsal flexion, both feet. No Oppenheim. No ankle clonus. Astereognosis in hands rather marked, failing to recognize comb, silver dollar, etc. Muscular sense in feet absent. Incoordination of movements of legs, and slightly of arms. Romberg sign marked. Gait resembling the stamping gait of tabes dorsalis.

Blood Hgb. 80%, R.B.C. 4,440,000. Color index 0.9.

Reds normal size, shape, and color.

W.B.C. 6.400. Differential S. M. 26%, L. M. 5%, Trans. 2%, Polyn. 66%, Eos. 1%.
Wassermann, negative.
Feces, no parasites or ova.

The case presents an interesting diagnostic problem. The nervous symptoms are very similar to those of the first case, but there is not the blood picture of pernicious anemia on which to make a diagnosis. In considering the differential diagnosis, we can in the first place definitely rule out a functional nervous disease, hysteria, or any peripheral nerve disease such as multiple neuritis. It is clearly an organic disease of the spinal cord. As there are no cerebral symptoms, and no evidence of disturbance in any of the cranial nerves we can say that the disease does not extend higher than the cervical portion of the cord. As the hands and feet on both sides are about equally involved it does not appear to be a localized lesion such as tumor. Paralysis and disturbance of sensation are both present, indicating a disease involving both the sensory and the motor tracts. Narrowing it down then to an organic disease of the spinal cord with widely distributed lesions in the cord, involving both the motor and sensory tracts, what are the possibilities. There are, I believe, three possible diseases to be considered, disseminated sclerosis, tabes dorsalis, and the disease described above, the subacute combined degeneration of pernicious anemia.

Disseminated sclerosis produces an ataxia associated with spasticity. Any peripheral sensory loss, as is so noticeable in this case, is very uncommon in disseminated sclerosis. It also usually begins earlier in life. We should expect also, with the disease having continued as long as this, to begin to get some of the cardinal symptoms of dissemination sclerosis, the diplopia and nystagmus, the interior tremor, or the scanning speech, all of which are here absent.

Tabes dorsalis produces ataxia and sensory loss. The absence of any pupillary, or other eye changes, the positive Babinski sign, the negative Wassermann, and the absence of any history, or evidence of syphilis make tabes very unlikely.

On the other hand, considering the nervous system alone, the history, symptomatology and signs fit in perfectly with subacute combined degeneration. There is the preceding history of a chronic gastro-intestinal disturbance, there is the onset in the sixth decade, there is the characteristic progress of symptoms, beginning with numbness in the hands and feet, gradually proceeding upward and followed by paraplegia and ataxia. There is also the loss of sphincter control. On the objective side there is the glove and stocking distribution of sensory loss, the astereognosis, the positive Romberg, and the characteristic diminution of knee jerk combined

with a positive Babinski. Against this diagnosis is the absence of any of the blood changes of pernicious anemia, although the nervous symptoms have been progressing for about three years. As has been noticed, however, cases have been reported which have had the nervous symptoms for at least three years before the development of a pernicious anemia. All the possibilities considered, this would certainly seem to be the likeliest diagnosis, and I think we should, tentatively at least, consider the case as one of subacute combined degeneration. It will be most interesting to watch, if possible, the further progress of this patient with the expectation that she will eventually show the characteristic blood picture of pernicious anemia.

VACCINATION VS. ANTI-VACCINATION
(*The El Paso Plan*)

It seems passing stange that a point in medicine so well proven as vaccination against smallpox should need a brief at this time to prove its worth.

El Paso has been the scene, and is at present the scene, of a national endeavor on the part of the Christian Science, Chiropractic, Neophatic, and other cults, to destroy vaccinations in the public schools. The past year, under a former city administration, the Christian Science organization in company with representatives of these other cults, were permitted to appear before the city council and protest against the new city ordinance for controlling the vaccination of the children entering private, parochial or public schools of the City of El Paso.

Under this former city administration, the ordinance fortunately only reached its first reading. Major Tarbett, loaned by the Public Health Service of the government to El Paso last year in the mosquito campaign, in conjunction with the Tax and Economy Committee of the Chamber of Commerce, had re-organized the health question laws of the City of El Paso. New ordinances were carefully compiled after a most painstaking investigation of the methods used in various cities of the United States. Ordinances of these respective cities were carefully studied. Subsequent to this investigation, Major Tarbett, in conjunction with a gentleman of the Tax and Economy Committee, Mr. Cummins, and the City Attorney, drafted a series of health ordinances that have been commended and complimented by the Surgeon General of the U. S. Public Health Service and the State Health Officer of Texas.

The Christian Scientists seized upon vaccination as the point to attack. The Christian Science national organ, the Monitor, compiled for their local representative, a Christian Science practitioner, a garbled mass of data. Sentences were taken from various articles on vaccination appearing years ago, and recently, in the medical press. The sentences that were chosen from such articles were those which when combined together would make the medical writer of the article seemingly absolutely reject vaccination, or express regrets as to its shortcomings. The national cult organization had carefully abstracted and compiled the material. England's "Conscientious Objector's Rights" and England's experience in following out this conscientious objection of its citizens, was used as a vantage point upon which to build a strong resistance or a strong request against the adoption of a compulsory vaccination of all school children, whether in private, public or parochial schools of the City of El Paso.

There was a strange absence of reports or comments upon epidemics of smallpox that have occurred in England as a result of such granting of conscientious objection, by the local protestors.

The present city administration inherited this laid-over question. The present mayor, the Honorable Richard Dudley, is a broad-minded, conservative thinker, and a ruggedly honest

man. Shortly after his induction into office, he was approached by those opposing vaccination, who demanded an amendment to the ordinance upon the question. The medical profession and the opposing forces were notified by the mayor that the question would be taken up two weeks subsequent to such notice. Each side would be permitted a right to present their side of the question. Attorneys were employed by the Christian Science forces. The Monitor again compiled a mass of garbled data. So-called physicians, individuals who classified themselves as doctors, presented themselvés at the council chamber. Members of the various unions, who had been lead into the belief that not only their children, but they themselves would be forcibly vaccinated by the full-term health officer and his staff in El Paso if this ordinance were to pass, were there to protest. In the meetings of their unions, they had passed resolutions requesting the council not to pass this vaccination portion of the new city ordinance. This false fear had been carefully cultivated by someone.

No stone had been left unturned by the opposers of modern medicine. There were those there who had had children vaccinated, who made statements that the children had never been well since they had been vaccinated; that they had been strong and rugged individuals before that, but were at present pitiable examples of a horrible medical act; that they were invalids, and would in all probability remain invalids for the remainder of their days.

The El Paso County Medical Society's president, Dr. Hendricks, appointed a committee of seven. The chairman, Dr. Hugh Crouse, requested the privilege of selecting others. Such was granted.

The cults and isms had, through what is known as the "Liberty League of America"—a side chain creation organized for co-operative purposes, induced certain United States senators and congressmen to request the secretary of war to forbid the commanding officer, or the commanding medical officer of this military district to appear before the council of the City of El Paso, in the council chamber.

The secretary of war issued the order that the commanding officer of William Beaumont Hospital, or the medical men of Fort Bliss were forbidden to leave the military reservation to come to the city and give any testimony, or aid in any way in furthering the side of the medical men of El Paso against these efforts of the Christion Scientists and their associates.

There was not any order given, though, against the mayor and his council, the city attorney, the city health officer, etc., visiting the military reservation near El Paso, and consulting with the commanding officer of Fort Bliss, Major General Howze, or discussing with the commanding medical officer of William Beaumont Hospital, the military men's idea of vaccination against smallpox.

Mahomet went to the mountain.

On August 22d, the Honorable Mayor Richard Dudley, his council, the city attorney ,the city health officer, the mayor's secretary, and the chairman of the medical committee visited William Beaumont Hospital, and were entertained by the commanding officer of the military reservation, Major General Howze; the commanding medical officer of the William Beaumont General Hospital, Colonel Shockley, and a large group of medical officers and veterinarians. This group represented every phase of medicine.

This meeting was held in the library of the William Beaumont Hospital. In order that the question might be forcibly, cleanly, clearly and concisely impressed upon the mayor and the council, it was suggested that the matter be handled like a court. The mayor to be the judge; the councilmen to be the jury; and the question of vaccination to be put on trial as a case, and testimony to be taken. This was consented to by the mayor and his council, so the method of defense was, with the gracious consent of the commanding officer of this district, Major General Howze, and the commanding officer of William Beaumont Hospital, Colonel Shockley, carried out by the chairman of the committee. A series of carefully selected

questions and cross-questions was used, such covering, thanks to the brilliant replies, every phase of the question of vaccination.

The subsequent day, the 23d, the public meeting that had been advertised was held in the council chamber by the mayor and the council. The Christian Science representative and his attorneys and his sympathizers presented their side of the question first. One hour was granted each side by the mayor. The second hour, the question of defense was handled by the chairman of the medical committee by calling witnesses, who consisted of:

The past county health officer, Dr. Hugh White.

The past city health officer, Dr. Hugh White.

The present city health officer, Dr. John Brown.

Dr. Meyer I. Leff, formerly medical director of the American Joint Distribution Committee in eastern Europe.

The present city health officer, Dr. McCamant.

The three leading children's specialists, Dr. Rawlings, Dr. Leigh and Dr. Craige.

The two laboratory men, Dr. W. W. Waite and Dr. John Turner.

The genito-urinary man, Dr. Jamieson.

The city veterinarian, Dr. Proper.

Mr. Conner, the man who has had charge of the pest-house for the City of El Paso for the last 12 years.

County Judge McClintock.

Tubercular specialists, Dr. Homan and Dr. Laws and Major French, sanitary inspector for this district.

The witnesses of the Medical Committee covered in their testimony the subject of vaccination from every angle.

The line of attack on the part of the cults was that of the liberty granted by a democratic form of government to every individual, the right to accept or reject anything that the individual might decide for himself or his minor child. They particularly stressed "Bovine Syphilis." They stated vaccinations would transmit this dread disorder from the source of the glycerated lymph to the individual who was vaccinated. They stated that tuberculosis was frequqently transmitted by means of vaccination, and that scrofula, erysipelas, strange and debilitating complaints were transmitted and produced by vaccination against smallpox. That limbs were sacrificed and lives were taken frequently by this dreadful procedure.

Garbled excerpts had been compiled by the Monitor in behalf of this fight, from various sources. Editorials in the London Lancet, articles in the Journal of the A. M. A. were culled. Notable among these was the Kitasato article in the March 25, 1911, number of the Journal of the A. M. A. This was the main article that was used and garbled by the leader in behalf of Christian Science in attacking vaccination and the ordinance. Their attorney stated there had never been a law passed by congress ordering vaccination.

Each of these elements stated that the reason why the medical men were insisting on the ordinance being passed was for commercial and financial reasons; that their desire was a financial one, and had no humane feeling or sentiment in it. As a proof that compulsory vaccination was a failure, they stated that Fort Bliss had suffered from two smallpox epidemics in the last three years.

Evidence was brought out carefully to refute each of these points. It was that in every epidemic the county and city health officers, past and present, that oin every epidemic the county and city officials had vaccinated practically every individual free of charge. It was brought out that individuals exposed to smallpox were granted the privilege of being vaccinated by private physicians if they so desired. It was shown that practically 1900 had been vaccinated during the last epidemic of smallpox at El Paso, of which only 185 had selected private physicians to perform it, and the remainder had been vaccinated by the county and city. With 120 physicians in the city, it was demonstrated that 185 vaccinations was a small amount to be scattered among them, and would be of very poor financial aid for the 120 medical men.

It was shown through the public

health office representative, Dr. John Tappan, that all emigrants entering the United States had to show positively that they had been successfully vaccinated, or submit to vaccination before they could be granted the privilege of entering the ports of this country. That Conscientious Objections and Christian Science counted for naught in securing their entrance into this country. That this vaccination order was from the Surgeon General of the Public Health Service of the United States. That he was under a department of the government. That an act of congress gave him authority to so order. This refuted the statements of opposition's attorneys that congress had never passed an act compelling vaccination.

Dr. Leff stated that during his anti-typhus work in eastern Europe after the war, he saw very few cases of smallpox, despite the fact that in those countries smallpox used to be endemic before the war. The local physicians explained that the change was due to general compulsory vaccination practiced by the Germans during their occupation.

Every angle of possible infection was presented. The testimony of a specialist was given on every point. The laboratory men reported never having seen a positive Wassermann or specimen of tuberculosis or tissue that gave signs of such, as a direct or an indirect result of vaccination. The children's specialists stated that they had never seen a child whose health had been wrecked, or even been involved for any length of time, by vaccination.

The tuberculosis men denied ever having seen a case of tuberculosis produced by vaccination.

The veterinarian, as well as the laboratory men, stated positively that there was not such a thing as "bovine syphilis"; that cattle were not attacked by syphilis. Step by step, every feature of their attack was neutralized and destroyed. The conclusion of evidence was summarized by the chairman of the Medical Committee.

Each side was granted ten minutes for rebuttal. The cults spent theirs in personal recrimination. The chairman of the medical committee used Major French, military sanitary inspector of this district, as a witness to refute the cult's statements that two epidemics of smallpox had occurred at Fort Bliss, despite military vaccinations. Major French simply stated that the two "epidemics" were two cases, only a year apart. One, a raw recruit, two days after entering the army, developed smallpox; the recruit had not been vaccinated. The second case was an army officer's wife, a Christian Scientist, who had not been, and refused to be, vaccinated. She nearly died as a result of a confluent form of smallpox.

The health ordinance came up before the mayor and city council of the City of El Paso for its final reading, on Thursday, the 30th. One councilman was absent. The other three voted unanimously in favor of the ordinance.

These details have been given covering both the attack of the cults and the defense by the medical profession, because it is felt that similar attempts will be made, sporadically over the country, to discredit vaccination. The methods of defense so successfully pursued in El Paso may be of aid to our colleagues in similar cases, whether in New Mexico, Arizona, Texas, or a more remote section of the United States.

SIC SEMPER CULTIBUS!

RESIDENT AND TRAVEL SCHOLARSHIPS FOR PHYSICIANS

The American Child Health Association has appropriated $10,000 in scholarships to be awarded in amounts to be determined by the character of work to be accomplished. These are to be awarded to physicians who want to improve their qualifications for child health work, in order to meet the growing demand for more and better trained physicians in the field of child health. There is to be a freedom of choice of institutions with approved courses — demonstrations and places doing some outstanding piece of child health work. These are to be awarded during the school year of 1923 and 1924.

Application blanks and further information may be obtained from the American Child Health Association, 370 Seventh Ave., New York.

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THE RECOGNITION OF MEXICO

The medical profession of Arizona, New Mexico and western Texas have a peculiar interest in the advantages attached to the re-opening of diplomatic relations with Mexico. The settlement of the matter in discussion, namely, that of the status of properties in which foreign capital is invested or to be invested, has a direct bearing on the well being of the medical profession of the entire southwest. The industries of northern Mexico, particularly with their hospitals, medical departments and opportunities for independent physicians will attract many American physicians and surgeons. Within the last year or two quite a number of doctors have gone from the border states into Mexico and others will follow. When the Southern Pacific of Mexico line is completed to Mexico City, a vast territory, hardly yet touched by the hand of man will be opened up. Organized medicine in the southwest should grasp this opportunity and build up a firm and lasting fraternity with the medical profession of northern Mexico.

IMPORTANT MEDICAL MEETINGS

September and October w ill witness three important medical gatherings in the middle west, one or all of which will interest many doctors of the southwest.

The American Roentgen Ray Society will hold its annual meeting in Chicago, Sept. 18 to 21, with headquarters at the Congress Hotel. This annual meeting of x-ray specialists is one of the important medical meetings, and attracts a large number of visitors. The development of radiotherapy has been so rapid and now ramifies so into all branches of medical practice that well informed physicians and surgeons find it necessary to seek information at first hand, and there are usually more general practitioners and specialists in attendance at this annual x-ray convention than there are members of the Society. The program is to be divided into two portions. Two days will be given to papers on diagnosis and two days to papers and discussions on research and radiotherapy. A number of foreign visitors will be on the program.

The American Congress on Surgery will be in Chicago the latter part of October, and their usual week of intensive clinics and papers will be given. Those who expect to attend this meeting should seek information early and make their reservations for their choice of clinics.

The Tri- State Medical Society, comprising Iowa, Illinois, Wisconsin and Minnesota will hold its annual assembly beginning October 29th, and running for four days, at Des Moines, Iowa. An invitation is extended to physicians who are members of state societies in good standing to attend this unusual meeting, which is given over to post-graduate scientific study.

The list of speakers and teachers for this assembly sounds like a roll call of the leaders of the profession of the country. The list is too long for reproduction here, but the gathering is evidently to be one of the notable meetings of the year.

TUBERCULOSIS PREVENTORIUM IN ARIZONA

The Arizona Anti-Tuberculosis Association has just recently finished their first demonstration of the value of a Preventorium in that state. This venture was made possible by the interest and labors of Miss Louise Freeland, Chairman of the Anti-Tuberculosis Committee of the State Federation of Women's Clubs, who sponsored the work and saw it through to a successful conclusion, under the general supervision of Mr. T. C. Cuvellier, Executive Secretary of the Association.

The Preventorium was located at Prescott, and cared for ten children during a sixty day period, giving them the proper nourishment, proper hygienic surroundings and training in physical care. Such medical attention as was required, together with the physical examinations necessary were donated by Dr. John W. Flinn, of Prescott.

With this demonstration so successfully concluded, it is expected that public spirited civic bodies over the state will back other similar philanthropic movements for the undernourished children of Arizona.

DR. RICHARD G. JONES

Dr. Richard G. Jones, of El Paso, died at his home on July 10th, 1923. Dr. Jones was born near Bessmay, Texas, in 1894, taking his premedical work at A. and M. College, at Bryan, Texas, graduating from Vanderbilt University in 1919. After graduation, he came to Silver City, N. M., on account of his health, being associated with Dr. E. S. Bullock, at the New Mexico Cottage Sanatarium; after the war, he moved to El Paso, where he practiced until his death.

Dr. Jones was a member of the county, state and national medical organizations and was highly esteemed by his associates. He is survived by his wife and one daughter.

ST. MARY'S HOSPITAL (Roswell, N. M.) STAFF MEETING.

(C. M. Yater, M. D., Secretary)

The General Staff of St. Mary's Hospital (Roswell, N. M.), met in regular session on Aug. 21st, with the following members present: Drs. Ingalls, Bradley, Haymaker, Beeson, Buchly, Phillips, Presley, Kinsinger, Joyner, Bryant, Swearingin, Goodsell, Galloway, McClane and Yater. Dr. Austin, a recent arrival in Roswell, was also present, together with six of the hospital Sisters.

Minutes of the last meeting were read and approved.

The Executive Committee had arranged for a general discussion of appendicitis at this meeting, and this was opened by a report of a case by Dr. Ingalls. The patient had a long standing history of intestinal trouble, which had recently taken on an acute nature. Upon opening the abdomen the appendix was found gangrenous, bound down and buried in a mass of adhesions to such an extent that no attempt was made to remove it. Large drains were placed and the patient removed to his room. After three days, the patient had a rather severe hemorrhage from the drainage tract which continued intermittently for the next ten days, when the patient died. Autopsy showed many large clots in the abdomen and much sloughing of the parts.

Dr. Joyner reported a case that was interesting on account of the laboratory findings, together with the physical condition found on examination as compared with the operative findings, all of which suggested an unfavorable prognosis. The case was a laborer, aged 34, with history of one

previous attack similar to the present one, with recovery without operation. In the last attack, the pre-operative diagnosis lay between an acute recurrent appendicitis and renal colic. He was first seen after 48 hours of pain, bedfast for the last 24 hours. Temperature was 101, abdomen tender on pressure all over, very little distention, vomiting in early part of the attack was severe, no acute pain, dullness in lower right quadrant; patient was carried to the hospital at once. White cells were 7600, polynuclears 78%, pulse 84, respiration 20, on admission. Abdomen was opened by right rectus incision, showing a very large, thick, adherent appendix, partially walled off. Both appendix and surrounding tissues were so thickened and friable that it was impossible either to ligate the appendix or to suture the tissues. After much difficulty the appendix was loosened from adhesions and ligated as well as possible, but could not be buried on account of the friability of the surrounding tissues. Large drains were inserted and the abdomen closed, with an unfavorable prognosis. There was very little drainage, no pus, and an uneventful recovery, the patient being out of the hospital in three weeks.

Dr. Galloway reported the case of a girl of seven years, who was taken in the evening with abdominal pain. Next morning the white count was 16,000. Abdomen was opened liberating free pus, appendix was removed, abdomen drained, patient recovered rapidly and the abdomen closed almost by first intention.

The cases were freely discussed by most of the members present. The application of Dr. J. L. Austin was presented and referred to the Executive Committee, after which adjournment was had and the doctors enjoyed the usual treat of cookies and lemonade furnished by the hospital Sisters.

MINUTES OF A SPECIAL MEETING OF THE EL PASO COUNTY MEDICAL SOCIETY HELD AT THE UNIVERSITY CLUB ON AUGUST 18, 1923.

A special meeting of the El Paso County Medical Society was held at Hotel Paso Del Norte in one of their private dining rooms preceded by a light supper, to entertain Dr. A. C. Scott, President of the State Medical Association of Texas, and to have this celebrity address the society. The meeting was called to order at 7:30 p. m., August 18, 1923.

Both the president and vice-president of the society being absent from the city, Dr. R. B. Homan was asked to supply the chair.

At the conclusion of supper Dr. Scott was asked to take the floor, and he announced his subject to be "Certain Problems of the State Medical Association." He spoke somewhat briefly on the activities of the Chiropractors and Christian Scientists and their vigorous and expensive methods of approaching the State legislators and in appealing to their sympathy and that of the public in general. Also, he gave an outline of the difficulties and worries of the officers and committees of the State association in their support of the new Medical Practice Act through the House of Representatives and the Senate at Austin and until the Governor had affixed his signature, making it a law. He emphasized very forcibly the importance of being ever awake to the fact that the chiropractors and Christian Scientists are not recognizing defeat but are vigorously planning to renew their efforts before the next meeting of the legislature. These more brief descriptions led to the major part of his address, more important because of its bearing on the future as probably the greatest problem of the State association from the viewpoints of public interest, and by virtue of it, medical defense, viz: The Education of the Public in Public Health Problems.

Outstanding is the plan by which it is hoped to accomplish great results toward this end. Shortly county societies will be asked to create committees of as many as seven physicians where the membership will permit. These committees will be expected to interest many prominent and public spirited citizens, whose opinions are well regarded in their communities, in public health work, and encourage them to investigate public health subjects and advise the public accordingly. It is believed that in time the public generally will look to this body in formulating its opinion and in governing its action.

On the subject of prosecution of offenders of the law Dr. Scott advises caution in the use of trivial points. To be prosecuted and jailed on such points enables the offenders to create public sympathy to enormous proportions, and the chiropractors and Christian Scientists are eager for such opportunities.

Another plan of the State association is to create a fund to be used in the defense of the medical profession of the state. Dr. Scott stated that later each society will be asked to provide $5.00 per member toward this fund. By way of analysis he states that it has been estimated that in the capacity of a business the doctors of Texas do about $7,000,000 a year. Were this a business firm with such capital from one to five per cent would be spent to keep the business in a healthy condition. Asked what proportion the medical profession spends in defense as compared with the chiropractors and Christian Scientists, he stated not over 5%. He emphasized very forcibly the importance of providing this fund at the rate of $5.00 for each member of the Association.

The meeting adjourned at 9:45 p. m.

F. O. BARRETT,
Secretary.

Personals and News

El Paso Health Department,

Word has been received from the Surgeon-General of the U. S. Public Health Service acceding to the request of Mayor R. M. Dudley, of El Paso, that Dr. John W. Tappan and Mr. R. E. Tarbett, Sanitary Engineer, U. S. Public Health Service, be put in charge of the El Paso Health Department in an advisory capacity during the absence from the city of Dr. John W. Brown, City Health Officer, Dr. R. A. Wilson, Assistant City Health Officer, will be in active charge. Dr. Brown will attend the eight months' course in public health work at Johns Hopkins University, Baltimore, and will leave El Paso the latter part of September. This course leads to the degree of Doctor of Public Health. It is to be hoped that Dr. Brown will in time be able to complete the work he is now starting.

Dr. James Vance

Writes from Portland Oregon, that he is on his way to Tacoma, and Mt. Ranier, where he expects to spend several days. From there he will go to Spokane, and thence into Canada, to Banf and Lake Louise, if roads are good, thence the homeward trend. He states the trip has been a most delightful one.

Mr. R. E. Tarbett,

Sanitary Engineer, U. S. Public Health Service, who was of such great value in the reorganization of the El Paso Health Department, spent two weeks in the John Seeley Hospital, at Galveston, suffering from dengue fever. He has recently returned and is now regaining his physical poise with his family at Cloudcroft, New Mexico.

Dr. C. P. Austin,

Of Lordsburg, N. M., visited El Paso during the first part of August. He indulged in the purchase of a new automobile which he drove home in.

Dr. Andres Villareal,
Has returned to El Paso from California where he and his family spent their vacation.

Dr. W. W. Waite,
Has returned to El Paso from his extended trip through California.

Dr. W. L. Brown,
Of El Paso, spent a week in California with his family and has recently returned.

Dr. W. S. Sharp,
Of El Paso, took a trip to the northwest states, Oregon and Washington, and has recently returned.

Dr. J. M. Richmond,
Of El Paso, went to New York to see his wife who has just returned from Europe.

Dr. F. P. Miller,
Of El Paso, spent a short while in San Diego, California, with his family.

Dr. Burleson Staten,
Has recently returned to El Paso from his prolonged trip, much time of which he was undergoing treatment at the Mayo Clinic.

Dr. A. C. Scott,
Of Temple, Texas, was a visitor for several days in El Paso, he arrived on August 18th. Dr. Scott addressed a special meeting of the El Paso County Medical Society on some of the problems of the State Medical Association of Texas of which he is president.

Dr. Guido Ranniger,
Of Oscura, N. M., died at the Masonic Hospital, El Paso, August 17th.

Dr. E. B. Rogers,
Of El Paso, is spending a vacation in California.

Dr. Davis,
Formerly at Corona, N. M., and now located near Houston, Texas, passed through El Paso on his way to Corona on business.

Dr. Hartman and Dr. Chas. T. Stone,
Respectively, Professor of Pathology and Associate Professor of Medicine at the University of Texas, Medical Department, at Galveston, stopped over at El Paso for a short while on their way to Cloudcroft, New Mexico.

The Pasteur Institute,
Of El Paso, under the directorship of Dr. Hugh White has treated eighty-eight cases for the prevention of rabies during the year August 1, 1922, to July 31, 1923. It is a fact of interest that the Institute during the fifteen years of its operation has had no cases of rabies develop that it has given the treatment to.

Dr. J. A. Chilton,
Formerly of Colorado Springs, Colorado, is now Resident Physician of the Hendricks-Laws Sanitorium, El Paso, succeeding Dr. R. G. Fuller who resigned to go to the Soldiers' Home at Sawtelle, California.

The Masonic Hospital,
Of El Paso, in its efforts in the direction of progress and standardization, has taken one more important step toward perfecting its clinical records. During the past month an historian has been appointed whose duty it is to receive stenographic dictation from the physician at the time of examination and surgical operation and type the record in detail. Those physicians who have had their records made by this method are very much pleased with it and lend their co-operation readily.

Dr. Paul Gallapher,
Of El Paso, whose health has been somewhat below par for the past several weeks is indulging in a respite from practice in California.

Dr. W. L. Brown,
Of El Paso, for a week during August was confined to bed at Hotel Dieu suffering from ptomaine poisoning. He has since returned to his work and seems now entirely well again.

Dr. J. C. Darracott,
Of Marfa, Texas, brought a patient to El Paso during August.

Major Jacob C. Bowman, M. C. U. S. Army,
Is now at William Beaumont General Hospital, having joined for duty from the Philippine Islands, August 6th, 1923.

Major Elias E. Cooley, M. C., U. S. Army,

Has been ordered from the Philippine Islands for duty at William Beaumont General Hospital. He is expected to report September 13, 1923.

Major S. Munson Corbett, M. C., U. S. Army,

Has been ordered for duty at William Beaumont General Hospital. He is now on duty in Hawaii and his time of reporting here is not known.

Captain Gordon A. Clapp, M. C., U. S. Army,

Is now at William Beaumont General Hospital, having joined for duty from the Philippine Islands, July 5, 1923.

Captain Robert L. Tebbit, M. C., U. S. Army,

Has been ordered from the Philippine Islands for duty at William Beaumont General Hospital. His time of reporting is as yet not known here.

The William Beaumont Hospital,

Has recently completed its Physio-Therapy building which is now ready for use. Part of the equipment of this building will be an electro-cardiograph. It is said that this instrument is the only one of its kind in the southwest.

Dr. Fred G. Holmes,

Of Phoenix, Ariz., burst into the limelight recently by chasing a burglar through the streets and alleys of Phoenix, firing off a young cannon and scaring the burglar into surrendering.

Dr. John Hagan,

Of Phoenix, has returned to his practice in that city, after supplying for two months on the Copper Queen Hospital staff in Bisbee.

Dr. W. C. Ellis,

Of Phoenix, is about to graduate into the middle age class, by reason of the approaching marriage of his daughter.

Dr. James R. Scott,

Of Albuquerque, has resigned his position as pathologist to St. Joseph's Hospital of that city, to accept the appointment of combined city and county health officer for the city of Albuquerque and county of Barnalillo.

Dr. A. J. Wheeler,

Physician for the Indian School Sanatarium, at Phoenix, has returned to his post, after several weeks' vacation in northern Arizona.

Dr. Leigh K. Patton,

Formerly of Santa Fe, N. M., and now located at The Toren Restoration Hospital, of Oconomowoc, Wis., writes that their work is very interesting and successful. This is a private hospital for the rational treatment of nervous and mental diseases, and some rather startling work is being done on the restoration of such cases by removing foci of infection.

Dr. F. W. Allen,

Formerly in the Indian Service, at Sacaton, Ariz., and a faithful member of the Maricopa County society, has moved to Tucson.

Dr. H. C. Ladewig,

Is temporarily located at the Hayden Hospital, Hayden Ariz., supplying for Dr. Fitz R. Winslow, who is on vacation.

Dr. Harry T. Southworth,

President of the Arizona State Medical Association was recently elected State Commander for the American Legion in Arizona.

Dr. Wm. L. Welsh,

Of Fairbury, Nebraska, has been spending a week or two in Phoenix and Glendale, Ariz., looking after some property investments.

Dr. S. D. Little,

Of Phoenix, Ariz., has returned home after two months spent at various eastern medical centers in post-graduate work.

Dr. L. H. Thayer,

Of Phoenix, Ariz., has returned from two months post-graduate study at the Memorial Hospital for Children in Chicago, and resumed his practice.

Dr. E. W. Baum,
Of Phoenix, has returned to his practice after a few weeks rest and recreation in the White Mountains and on the coast.

Dr. M. S. Malloy,
Has resigned the position of Assistant City Physician and returned to Old Mexico.

Dr. R. A. Wilson,
Formerly of Terlingua, Texas, has been appointed Assistant City Physician, and will take charge of the responsibilities of that work on August 1st.

Dr. P. M. Shaver,
Of Carrizozo, N. M., was a patient in one of the hospitals of El Paso during the early part of July.

Dr. F. T. Wright,
Of Douglas, Ariz., with Mrs. Wright, passed through El Paso, on July 5th, on his way to Europe, where he will spend several months.

Dr. Charles Leavy,
Of St. Louis, Mo., stopped in El Paso to visit Dr. Smallhorst while on his way home from the A. M. A. meeting in San Francisco.

Dr. James Vance,
Of El Paso, left the latter part of July, accompanied by Mrs. Vance, for an automobile trip through the northwest, to be gone several weeks.

Dr. E. T. Wilkinson,
Who is stationed in Old Mexico, made a visit to El Paso the latter part of July, returning after a couple of weeks to his location in Mexico.

Dr. T. H. Dabney,
Of Columbus, N. M., was a visitor in El Paso during July, bringing a patient for treatment.

Dr. E. N. Reed,
Of Los Angeles visited El Paso during July and gave a talk before the El Paso County Medical Society.

Dr. R. L. Ramey,
Of El Paso, attended the installation of the new Rotary Club of Marfa, Texas, in July.

Dr. J. W. Britton,
Of El Paso, was a visitor in Los Angeles during the month of July.

Dr. A. B. Perkey,
Who practiced in El Paso and at Morenci, Ariz., later being associated with Dr. Dietrich of Los Angeles, in the specialty of pediatrics, has again suffered from failure of health, and his many friends will be sorry to hear that he is now unable to attend to his practice.

Dr. George Brunner,
And family, of El Paso, have returned home after spending several weeks in California.

Lieut.-Col. C. M. Hendricks,
Of El Paso, spent two weeks in the training camp at San Antonio, during July.

Dr. T. L. Moody,
Of the Moody Sanatarium, at San Antonio, was visiting friends in El Paso during the month of July.

Dr. E. J. Thornberry,
Of Hachita, N. M., was a visitor in El Paso about the middle of July, accompanying a patient for x-ray examination.

The Sisters' Hospital,
Of El Paso, has remodelled and renovated their operating department, rearranging the dressing rooms and refinishing the interior of the entire department.

Dr. W. L. Brown,
Of El Paso, went to Bisbee in consultation with Dr. George Bridge, on July 11th.

Maj. H. M. Shannon,
Of El Paso, attended the summer training camp at San Antonio, during July.

Dr. H. T. Safford,
Of El Paso, has returned to his practice, after visiting clinics in the east during the early part of the summer.

Dr. H. E. Stevenson,
Of El Paso, and family, has returned from overland trip to San Francisco and other California points.

Dr. F. C. Diver,
Of Dawson, N. M., chief surgeon of the Dawson Fuel Company, was in El Paso, the latter part of July, enroute to California on vacation.

Dr. M. G. Paden,
Of Carrizozo, N. M., was a visitor in El Paso the latter part of July.

Dr. Burleson Staten,
Of El Paso, who has been away from home for some time, was operated on at the Mayo Clinic the middle of July. He is reported to be recovering, although his condition was for a time regarded as serious.

Dr. J. J. McLoone,
Of Phoenix, Ariz., who is taking post-graduate work in Vienna and other points, writes that the work in Vienna is up to its old standard; that there are 178 American physicians there now, and the familiar "American Medical Association" of Vienna is in full blast again. Living conditions are good in Vienna and one can live better there, at a lower cost, than in any of the large American cities.

Dr. George E. Goodrich,
Of Phoenix, Ariz., was operated upon the latter part of August, for subacute appendicitis, Dr. Louis Dysart being the surgeon. He is recovering rapidly and expects to leave early in September for two months' work in Chicago, including the College of Surgeons meeting in October.

Dr. John Wix Thomas,
Of Phoenix, returned Aug. 31st from a month's vacation in southern California.

Dr. Willard Smith,
Of Phoenix, Ariz., is expected home Sept. 15th, from his trip to Australia and islands of the southern Pacific.

Dr. Warner Watkins,
Of Phoenix, Ariz., leaves Sept. 10th for Chicago to attend the annual convention of The American Roentgen Ray Society, of which he is secretary. He will return about Oct. 1st.

Dr. B. B. Moeur,
Of Tempe, Ariz., has been spending the summer at Prescott, where his son is under treatment for tuberculosis. The doctor will probably remain there for several months longer.

Dr. D. F. Harbridge,
Of Phoenix, Ariz., spent several weeks in California during August and early September.

The Deaconess Hospital,
Of Phoenix, is proceeding with its plans for staff organization, and it is expected that these plans will be consummated early in the fall. The entire x-ray equipment is now on the grounds and being installed.

Dr. H. V. Fall,
Of Roswell, N. M., has returned from a summer trip through northern states.

Dr. E. M. Fisher,
Of Roswell, N. M., has returned to his practice, after an extended trip through California.

Dr. J. L. Austin,
Formerly of Durant, Okla., has located in Roswell, N. M., taking offices in the American Security Bldg. Dr. Austin comes highly recommended by the profession of Oklahoma as an honorable and competent practitioner, and has at once identified himself with organized medicine of Chaves County.

Dr. H. A. Ingalls,
Of Roswell, N. M., is spending part of his time with his family at Pine Lodge, taking with him on a recent week end, Miss Fannie Yater, daughter of the secretary of the County Society.

Dr. D. D. Swearingin,
Of Roswell, N. M., usually spends the week-end with his family in the mountains west of Roswell, where they are located for the benefit of the baby—D. D., Jr.

Dr. J. M. Pearson,
Of Glendale, Ariz., has recently returned from eastern centers. He took post-graduate work at the Massachusetts General Hospital under Dr. Cabot and Dr. Holmes.

Dr. R. J. Stroud,

Of Tempe, Ariz., has been made receiver of the Tempe bank which recently failed with practically no assets to cover its heavy liabilities.

Dr. Harry R. Carson,

Of Phoenix, secretary of the Medical & Surgical Association of the Southwest, has returned to his practice after spending several weeks in Prescott, taking a much needed rest.

Dr. E. W. Phillips,

Resident physician for St. Luke's Home, will not engage in private practice during the coming winter, but will devote his entire time to the work of the sanatarium. His offices in the Heard Building are for rent during the winter.

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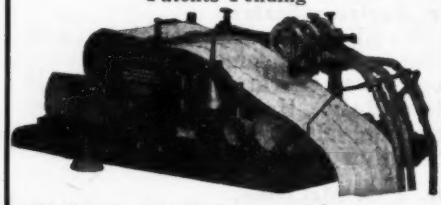

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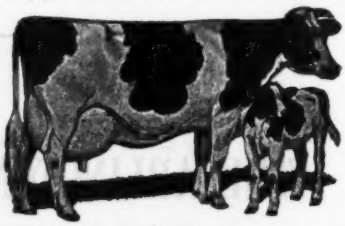

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